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AMERICAN FRUIT GROWER

Vol. XXXIX
No. 10



October 1919

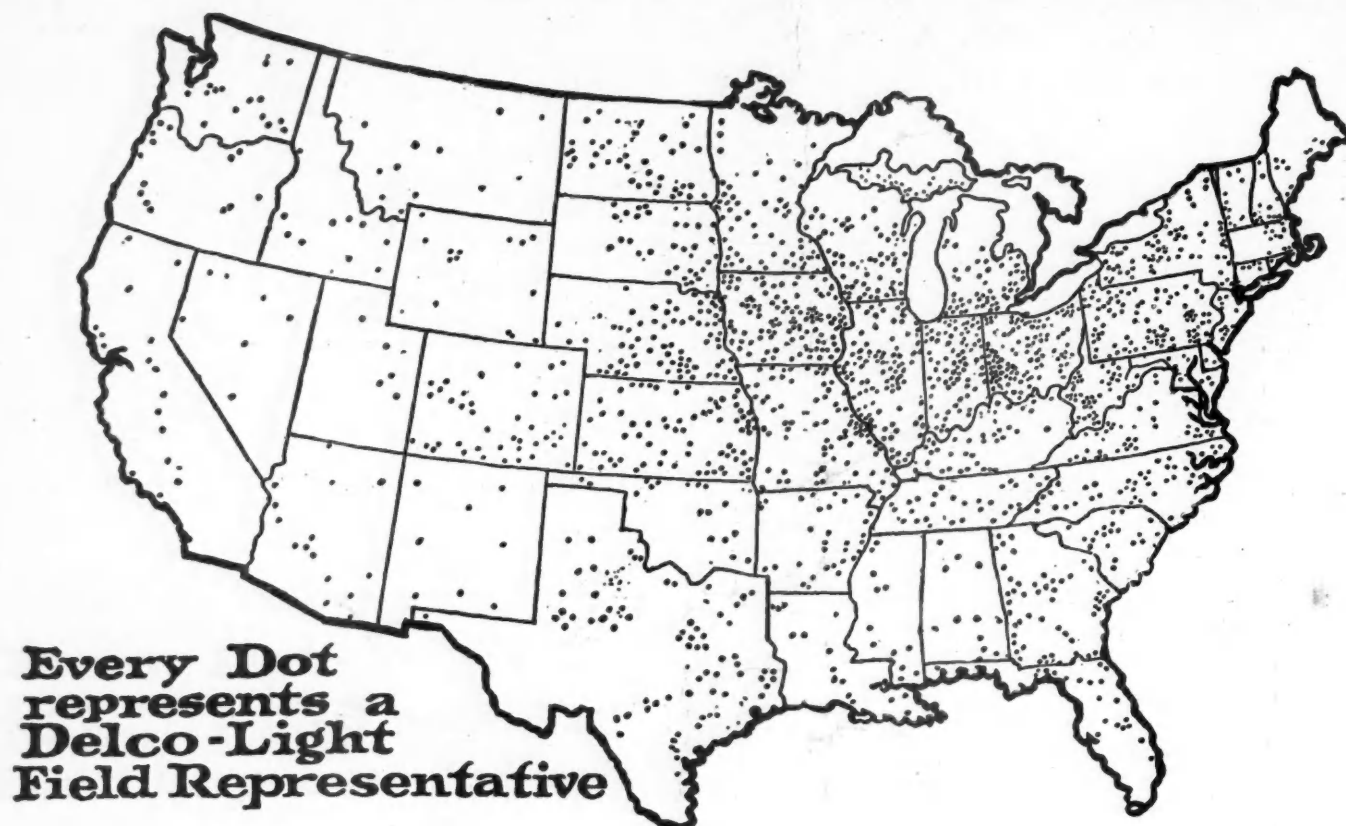


Ten Cents
A Copy

"Honors of
Peace"



Edited by Samuel Adams



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No matter where you live, there is a Delco-Light man within easy reach of you.

This means much more to you than mere convenience in the purchase of a Delco-Light plant.

These men are trained men—They KNOW electricity as applied to farm use.

They can advise you as to the size of plant you should have.

They can see that your house and barn are properly wired—

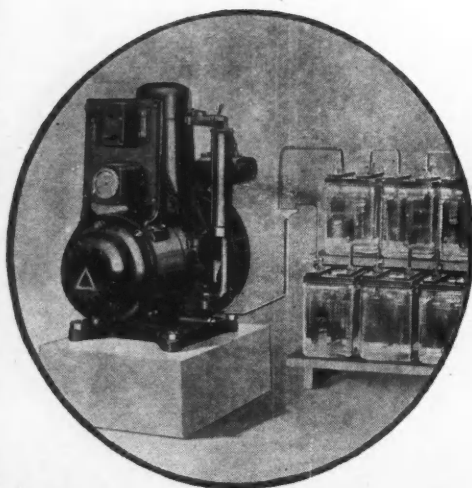
They can superintend the installation of the plant so that it will give you the most efficient and economical service.

They can tell you where and how to place your water system and what kind of a water system to have to meet your particular requirements—

They can give you intelligent advice as to the purchase and use of washing machine, churn, separator, milking machine and other appliances that you can operate with the electricity furnished by Delco Light.

And—After the plant is installed they are always near-by to advise with you and see that you get full hundred per cent satisfaction out of its operation—

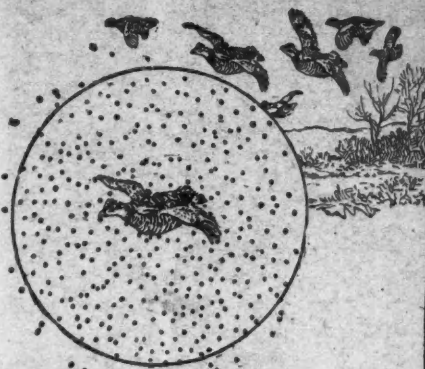
Delco-Light is lightening labor, bettering living conditions and actually paying for itself in time and labor saved in more than 75000 farm homes.



DELCO-LIGHT

A complete electric light and power plant for farms and country homes, self-cranking—air-cooled—ball bearings—no belts—only one place to Oil—Thick Plates—Long Lived Battery—RUNS ON KEROSENE

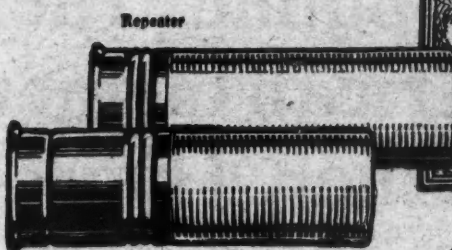
The Domestic Engineering Company, Dayton, Ohio



The hard-hitting Winchester pattern is evenly distributed. No game gets through and no game is mutilated.



A patchy pattern often means a miss, many times a cripple, and sometimes badly mutilated game.



Leader

GAME GETTERS

THE steady game-getting qualities of Winchester Loaded Shells have made them the favorite shells of experienced shooters.

Under all weather conditions they play true to form, shooting a strong, even spread of shot. The Winchester waterproofing process prevents swelling from dampness; special lubrication of the paper fibres prevents brittleness and splitting in dry weather.

The secret of the famous Winchester Shot Pattern is in the control of the gas blast from the exploding powder. This in turn depends upon the wadding in the shell.

The Winchester gas control system

The Winchester system of wadding and loading is the result of repeated experiments to determine the most effective control of the gas blast. The base wads of Winchester Shells are constructed to give what is known as progressive combustion to the powder charge. The ignition spreads to the sides, in all directions, as well as forward.

Under the heat and pressure of this progressive combustion, the tough, springy driving wad expands and fills the bore snugly, completely sealing in the gas behind. In being driven through the bore this wad offers just enough resistance to the gas blast to insure complete combustion of every grain of powder, so that the full energy of the whole powder charge is developed at the muzzle. Thus none of the shot charge

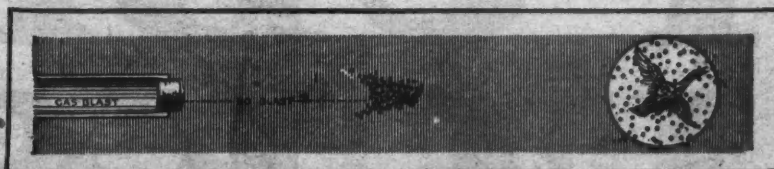
leaves the gun until it is being driven by the maximum energy and velocity possible from the load.

At the muzzle, the expanded, snug-fitting driving wad is slightly checked by the muzzle choke or constriction, while the shot cluster travels on unbroken by gas blast or wadding, making the hard-hitting uniform pattern for which Winchester Shells are world famous.

Uniform shells. From primer to crimp, Winchester Shells are so balanced in construction as to insure the maximum pattern possible from any load. The broad fish-tail flash from the primer gives even and thorough ignition; the driving wads completely seal in the gas behind the shot; the stiffness of the crimp or turnover at the shell head is varied exactly according to different loads, great care being taken never to stiffen it to such a degree that it offers undue resistance to the powder explosion.

Clean hits and more of them

To insure more hits and cleaner hits in the field or at the traps, be sure your shells are Winchester Leader and Repeater for smokeless; Nublack and New Rival for black powder. Leading hardware and sporting goods dealers in every community carry Winchester arms and ammunition. They will be glad to assist you in determining the particular load best suited to your purpose. Upon request, we will send you, free of charge, our interesting booklet on Winchester Shotguns and Loaded Shells.

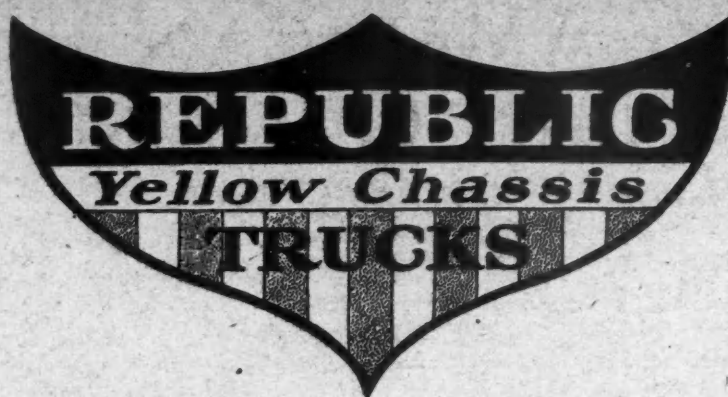


The Winchester system of wadding. The wadding expands evenly, sealing in the gas blast all the way to the muzzle, where the wadding is checked by the "choke" or constriction. The shot cluster travels on ahead unbroken. Actual test target 320 pellets out of 431 or 74% of the shot charge (1 1/4 oz. of 7 1/2 chilled) inside a 30-inch circle at 40 yards.

Winchester Repeating Arms Co., Dept 242
New Haven, Conn.,
U. S. A.

WINCHESTER

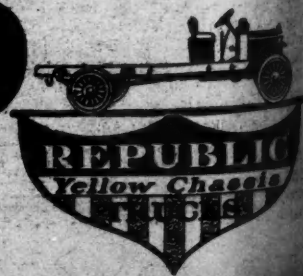
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FRUIT GROWER*The National Fruit Journal of America*

PUBLISHED MONTHLY BY

AMERICAN FRUIT GROWER COMPANY, Inc., State-Lake Bldg., Chicago, Ill.

HOME OFFICE: CHARLOTTESVILLE, VA.

Entered as second-class matter Oct. 17, 1917, at the Post Office at Chicago, Ill., under the Act of March 3, 1879

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280 Madison Avenue, - New York City

Vol. XXXIX

OCTOBER, 1919

No. 10

Eighteenth Amendment and Grape-Growing

By S. J. Bole

EACH radical departure from some social, religious or political custom affects different classes differently. The "bone-dry" amendment to the federal constitution, which was ratified by forty-five states during the past seventeen months is one of the recent illustrations of this. The drinking class thinks of this new prohibition in terms of a never satisfied thirst, which years of indulgence has created; the farming class thinks of it in terms of a lower price for grain; the wealthy class thinks of it in terms of an added tax which will have to be paid largely by them. Most of these and many other classes shall doubtless prove to be bridges crossed before they are reached.

Being a fruit grower, the writer very naturally thinks of this new amendment in terms of fruit-growing. He has many times heard both the California vinticulturists and New York wine merchants say that grape growing would be doomed in America, if national prohibition should ever come. Now that it has come, we wonder if what they said will come true. Coming at a time when the cost of living has doubtless reached its upper limit, may we hope that prohibition will greatly aid in solving this difficult problem. Such things as money spent for "booze," labor, capital, transportation and coal used in making an intoxicating drink does not add either to the happiness or comfort of humanity.

One of the most fundamental problems confronting this nation today is that of food production and the cost of living. That this is becoming more and more a serious problem, is seen in the more rapid increase in population than in food production. At the present moment there seems little chance for the cost of living to become less for many months yet. In fact, a short crop of grain in this country alone would bring much of the world to the brink of starvation.

We should thank the Great Father from the depths of our hearts for the magnificent crops that America has produced during the past two years. Had either of these years given us but a fifty or even seventy-five per cent crop, half the world would have gone hungry and countless thousands would have starved. As it is, the people of Austria, Germany, Roumania and Serbia are facing a great food crisis. Will national prohibition force the grape grower to destroy a small portion, a large part or none of the vineyards? This is the main question that we wish to consider.

When studying the daily shipments of grapes in car lots a few months ago, the writer was at first puzzled to know how and by whom so many grapes were used. We put the question first to a Michigan buyer and shipper who explained that most grapes shipped in baskets were sold to families of foreign birth in our large cities, who made them into wine in the home and for home use. Not being fully satisfied as yet, we asked a New York wine merchant the same question and his answer was the same. He said that hundreds of cars of grapes shipped in refrigerator cars from New York, Pennsylvania, Ohio and Michigan are sold each year in certain large cities like Philadelphia, Scranton, Pittsburgh and Paterson. He said that probably ninety per cent of all the northern grapes shipped either in baskets or bulk are manufactured into wine, it being the rule rather than the exception that French, German, Austrian and Italian families make and use from one to ten barrels of wine each year. This same wine merchant further stated that, if

the laws would permit and if all the grapes east of the Rocky Mountains were made into wine, that each year's vintage would find a ready sale in New York and Pennsylvania alone.

A person with a mathematical type of mind might conclude, since ninety per cent of the eastern grapes are used for wine and since wine is now prohibited by law, therefore, ninety per cent of the eastern vineyards will have to be destroyed. While no mere human can predict the future with any degree of certainty, we shall give some reasons why we think most of our vineyards can be profitably operated in the future, even without making grapes into wine.

In visiting some of the wine cellars of Ontario, New York and Pennsylvania dur-

ing the vintage season a year ago, I was surprised to find that in each establishment visited, grape juice was being made. These wine merchants had already seen "the Handwriting on the Wall" and were getting ready to change from wine to grape juice.



An Eastern Vineyard with a Grape Juice Factory in the Background

ing the vintage season a year ago, I was surprised to find that in each establishment visited, grape juice was being made. These wine merchants had already seen "the Handwriting on the Wall" and were getting ready to change from wine to grape juice.

The reader may say, "Well, I don't care for grape juice and I don't believe its consumption will be greatly increased in the future." As we can judge the future only by the past, let us look briefly at the history of grape juice in this country. Dr. T. B. Welch of Vineland, N. J., was the first person to conceive of making and using "unfermented wine" which has since been called grape juice. It is true that grape juice has been known and used since the beginning of history. The Romans called the freshly crushed juice in connection with wine-making, mustum. The people of Europe have known the medicinal value of grape juice for centuries, but they did not know how to preserve it, hence its use was restricted to wine-growing districts and to the short season of wine-making.

Dr. Welch's vision was that of substituting grape juice for alcoholic wine in communion services. His first experiment

was made in 1869 when he made in his kitchen at home a few bottles of grape juice which were used in the communion services in his church at Vineland. Dr. Welch thought that ministers and physicians would at once recognize its merits, but in this he was mistaken. Many of the leading ministers of his day called him a religious "fanatic," arguing that the communion services demanded wine that was wine and not some substitute. Likewise, physicians called him a medical "crank," claiming that unfermented wine would ferment in the stomach and thus cause all sorts of trouble.

After spending some years of effort and all his ready money, Dr. Welch turned the slowly developing business over to his son, Dr. C. E. Welch. The son crowded the grape juice business in with his practice until his profession was finally crowded out. For a quarter of a century, progress was slow and disappointing at times, but the son possessed that unwavering faith that sees beyond the years for final victory, and held on. A partner was taken into the business, but became discouraged after seven or eight years and sold his interest back to the son.

In the meantime, Dr. Welch had accumulated a considerable amount of money, and in the early nineties, the son induced the father to come back into the business. An advertising and selling campaign was launched and the turning point seemed to be reached at the World's Fair in Chicago in 1893. The sales began to increase and a larger factory was built. Grapes did not thrive as well in New Jersey as they did in the north and as only selected grapes were used, grapes were shipped from New York to Vineland under ice. As these New York grapes could not be carefully inspected in the vineyard and as it required a week's work to get them to the factory after they were picked, they decided to build a factory in New York.

The new factory was located at first at

Watkins and in 1897 at Westfield. Since then two other factories have been built, one at North East, Pa., and the other at St. Catharines, Ontario. In more recent years, the Welch output has increased by leaps and bounds doubling four times in twenty years. Dr. Welch died in 1904 without having made any money from his venture but having given the world a new use for our native grapes.

The making of fruit juices is an outgrowth of the canning and not of the wine industry. The preserving of fruit consists in saturating the fruit pulp with cane sugar to a point where decay is prevented because of the large amount of sugar. Canning, on the other hand, consists in destroying all of the ferment-forming organisms by a sufficient amount of heat. In the last case, sugar may be necessary for its flavor but not for its keeping quality.

At the outset, Dr. Welch made the grape juice in the home kitchen and stored it in his barn. Sugar was used to help preserve it. It was soon seen, however, that much of its delicate flavor and aroma were lost if much sugar were used. Accordingly, the amount of sugar was gradually reduced and methods of perfect sterilization were developed. It was finally found that the best grape juice is made from fully matured and well grown Concord grape and without the use of sugar.

Visiting a Grape Juice Factory

A modern grape juice factory is a very interesting place to visit when in full operation. I have a rather vivid recollection of going through the Welch factory at Westfield, N. Y., in the autumn of 1917. The crates of grapes were being unloaded from wagons onto a series of rollers which carried them into the factory. The grapes were then dumped from the crates into the washing vat through which thousands of gallons of water pass each day. From here the grapes were then carried by a conveyor to the top of the factory where they were passed through a stemming machine which separated the berries from the stems.

I was then shown where the stems were carried outside the building and how the berries are passed through the rollers which break the skins and crush the pulp but not the seeds. This crushed mass is delivered through an aluminum pipe into the large aluminum stirring kettles where the crushed mass is sufficiently heated to loosen the rich color and aroma that is just beneath the skin. The heated mass passes downward into the two large aluminum storage tanks from which a quantity of this "must" is run out on a clean blanket of coarse cotton cloth held in place by a square wooden frame.

It is an interesting sight to watch the thinly clad workmen build up ten or twelve of these layers into a "steaming chesse" which is at once transferred to one of the big hydraulic presses. The superintendent told me it was first subjected to a slow pressure of thirty tons, and afterwards to a hundred tons which completely separates the juice from the pulp, skin and seeds and leaves the pomace dry and compact.

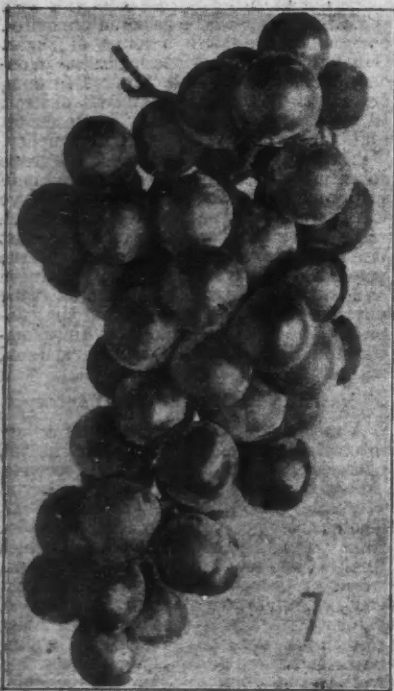
I was then shown where this juice was conveyed through pipes to the large pasteurizing kettles where it is heated by steam to a temperature of 190 degrees Fahrenheit, which sterilizes it. This sterilized juice is then passed through pipes into the filling tanks and from there into the cleaned and sterilized five-gallon glass carboys, which are stored in the dark basement for six or eight weeks, until the

sediment or argols settle to the bottom. The clear juice is then siphoned off and pumped into the pasteurizing kettles again where it is reheated and bottled. These bottles are cleaned, filled, capped, repasteurized and labelled by machinery and the hands of the workmen do not come in contact with the fruit or the juice throughout the whole process.

Many New Companies

Since 1900 many new grape juice companies have been organized and factories built. These are located mainly in New York, Pennsylvania, Ohio, Michigan and California. In 1914, there were one hundred and sixty-five fruit juice companies in this country, several of which had more than one factory. Many companies have operated for one or more seasons and then failed. Abandoned plants are often seen only a few blocks from one that is being run overtime during the season. At Lawton, Mich., is an example of this. Within a radius of three city blocks are three grape juice plants, two of which have been abandoned for several years. The third concern is a fine large factory which bears every mark of success. The two that failed may have made just as good product as the third, but they either did not possess the necessary capital or they were unwilling to put sufficient money into the advertising and selling ends of the business.

It has long been said that well grown apples would sell themselves. This is no longer so and grape juice, no matter how well made, will not sell itself. Careful dis-



The Concord Grape, from Which Grape Juice Is Made

tribution, advertising and salesmanship are necessary.

Prices Paid for Grapes

The Welch people paid ten dollars a ton for their grapes in 1897, but the price was gradually increased until in 1918 it reached \$60. At the present time, the consumption of grape juice would be increased many fold, were it not so expensive. With the rapid advancement of scientific horticulture and the modern methods of making grape juice in large factories, the price should become less to the consumer.

Grape juice is being used more and more for cooking purposes. It has a high food value, beautiful color and pleasing taste. To get some idea of its many uses, one has but to glance through Marion Harland's little booklet of ninety-nine selected recipes for the use of grape juice.

A cheaper but somewhat inferior grape juice is made in the home. This home-made beverage is very acceptable especially during sickness and the hot months of the summer.

We have briefly outlined the origin and development of grape juice in this country and we see no reason why its use should not be greatly increased from year to year. This is but one product from the grape; there are many others, including grape jelly, butter, jam, conserve, ketchup and the newest of all—grape syrup.

In recent years, we have learned that fruit with sugar furnishes just as much energy, is just as satisfying and is more healthful than too much meat. With the high price of meat, we somehow feel that the hundreds of carloads of grapes that

have in the past been made into wine, will and ought to find place as food products in the American homes, and that the owners of these vineyards will still find grape-growing to be a profitable pursuit to follow.

Motor Truck Power Sprayers

By W. E. Britton, State Entomologist, Connecticut

SO FAR as my information goes, automobile power sprayers are not used for orchard spraying in Connecticut. It is possible that some growers have mounted gasoline engine, pump and tank upon an auto truck and use the outfit in spraying their orchards, but if so, I have not heard of it. A few such outfits are in use in spraying shade trees.

The outfit is equipped with a four cylinder continental motor, which furnishes motive power for the truck and also drives the pump. By means of a small sprocket on the transmission in front of the gear box and a large one connected with crank shaft of the pump, by means of a chain, power is transmitted from the auto-engine to the pump.



Spraying an Apple Orchard with Auto Truck Power Sprayer

An improvement on such an arrangement is used in spraying for the gipsy moth in the New England states. The first one was, I believe, devised by the Federal Bureau of Entomology, but similar outfits are now used by the states of Connecticut, Massachusetts and Rhode Island, and a few towns and cities have purchased them for spraying shade trees.

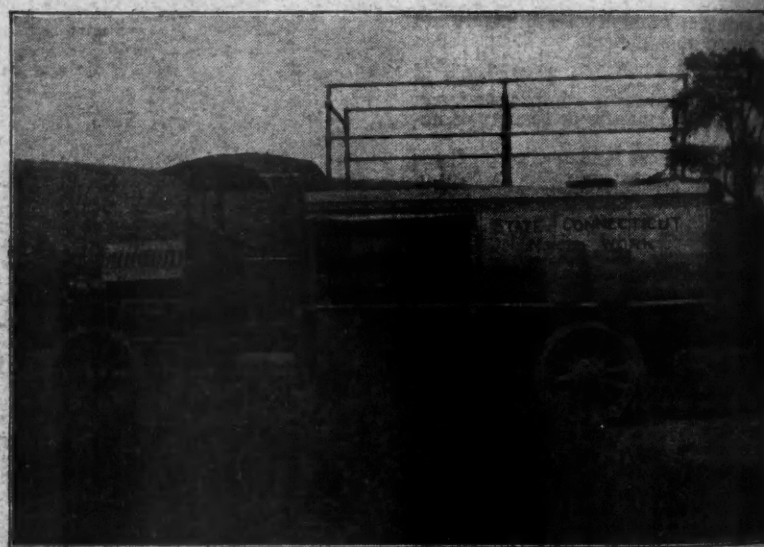
The outfit in question has but one gasoline engine, and that is the one which furnishes motive power to the truck. Power is taken from the transmission by means of chain and sprockets to operate the pump. With most stock automobiles there is no convenient method of taking off the power except by raising the rear axle or some other device.

For gipsy moth spraying much more power is needed than for orchard work, for much of it consists of woodland where the trees are tall and climbing is out of the question, on account of expense. Moreover in many cases the infested trees are on ledges or rocky knolls some distance from roadways and the land is too rough to drive over; in such places a line of hose 1,500-2,000 feet in length may be required. In such a long lead of hose the friction is considerable, and particularly if it points up hill a good pressure must be maintained at the engine in order to overcome the friction and offset the back pressure due to gravity and yet have sufficient pressure at the nozzle to throw the liquid into the tops of the tallest trees.

One inch fire-pressure hose is employed and several men are required to handle this hose when spraying.

The pressure gauge is set for six hundred pounds at the pump, though it is possible to obtain seven hundred. In order to do satisfactory work in solid stream spraying it is necessary to maintain a pressure of 225 pounds at the nozzle, and as friction and gravity greatly reduce this pressure when a long line of hose is used, it is essential to have about 600 pounds pressure at the engine in order to get 225 pounds at the nozzle. The following table shows the engine pressure required to give the necessary nozzle pressure with a one-fourth inch tip and varying hose lengths.

Length of Hose	Pressure at Pump	Nozzle Pressure
100 ft.	240 lbs.	225 lbs.
500 ft.	290 lbs.	225 lbs.
1,000 ft.	340 lbs.	225 lbs.
1,500 ft.	410 lbs.	225 lbs.



Auto Truck Power Sprayer Used in Gipsy Moth Work

The pump is a triple Fitz-henry-Guptill affair, and is furnished with an agitator and device for mixing paste arsenate of lead.

The wheels are thirty-six inches in diameter and fitted with solid tires having a four inch face on the front wheels and seven inches on the rear wheels.

A 400-gallon tank is mounted on the truck to carry the spray mixture. Worthley nozzles of two forms are used, the larger for spraying tall trees and the smaller for orchard trees. A railing above the tank, and a rack at its rear, enable the crew to carry the coils of hose, and the broad running boards give shelf room for transporting considerable quantities of poison, thus obviating in a measure the constant need of supply wagons or trucks.

A suction intake hose provided with strainer makes it possible to fill the spray tank or at least supply the aqueous portion thereof, from any pond, stream, spring or deep well, thus avoiding long hauls when heavily loaded.

Of course such an outfit as this is too expensive for ordinary orchard spraying and it is more cumbersome and more powerful

American Fruit Grower

than is needed for such spraying alone. Yet it can be used to spray orchard trees with excellent results. Where gipsy moth infestations occur in orchards and a portion are sprayed with it, according to the owners, the results are better than in other parts of the orchard where hand outfits were used.

Considering the fact that the pump and tank can readily be disconnected and removed, leaving a perfectly good two and one-half ton general purpose truck, which can be used twelve months of the year and worth at least one-half its cost, the initial investment is not as great as would appear at first thought.

There is still a demand, I believe, for a lighter, less powerful, and less expensive auto-truck power outfit, and the firm who can build a satisfactory one that will transmit its power to run farm machinery—only spray pump, but circular and log saw, ensilage cutter, threshing machine, drill wells, and possibly it could be pressed into service for mowing, raking, tedding and loading hay—it will find a ready market. A one-ton truck should furnish adequate power for this kind of work, and ought to sell for from twelve to fifteen hundred dollars.

The pictures show the outfit taking on water and also discharging the mixture through hose and nozzle, they also show the men handling the long line of hose.

This outfit, exclusive of hose and nozzles, cost \$4,500.00, three years ago. The present price is \$5,500.00. It uses a great deal of material, but saves on labor, which after all, is the most expensive item at the present time in large scale operations of this sort.

ADVERTISING FLORIDA FRUITS

The board of directors of the Florida Citrus Exchange has voted unanimously to make the advertising assessment for 1919-20 three cents a box on oranges and five cents a box on grape-fruit.

With the same volume of fruit as was handled during the past season, this assessment would yield a fund of approximately \$100,000, but the total sum produced by it

During experience has far in Colorado, which I have ready to every was been as some cases thordin of apples penses ar I have much inf shipment particula apples. pointers out by tion, for cars may in the v week be car of ap It is vance in ing ship able to reliable I was of ship where th know a my luck I arrang "I y how is t been sh bulk Be tion wi expense I sen agents. The agent v advise with ap This courag matter agent. Beto

PEARS FOR NORTHWEST

Due to the high prices for pears the past year, more pears than apples are being sent in the Hood River Valley. Growers of Bosc and Comice, D'Anjou and Bartlett received large returns. G. G. Brown, of the Hood River Experiment Station, who reports many inquiries as to what varieties of pears are suitable for northwestern planting, adds a recommendation to plant Winter Nellis as pollenizers.

AN OLD CHERRY TREE

A cherry tree, growing on the farm of David J. Chambers, near Olympia, Wash., is believed to be the oldest cherry tree in the northwest. It is a real "forty-niner" having been first planted in Milwaukee in 1847, and two years later, 1849, being dug up and taken west for replanting. The tree, a Blackheart, is thus 72 years old. It is still bearing some fruit.

Marketing Apples From the Car Door

By L. A. Cushman, Missouri

COMMERCIAL orcharding has quite a number of different phases; pruning, cultivating, spraying, harvesting and lastly, selling; each one of these forms a spoke in the wheel which turns round once each year and determines the degree of success in dollars and cents.

It has been said that apples properly cared for and grown to perfect maturity and then properly packed will sell themselves. I believe that there is very much truth in this assertion; and yet I think that you will agree that judicious marketing of the crop of times plays quite an important part in swelling the profits as compared with some methods employed.

I have been asked to talk especially in regard to the shipping and selling of apples from the box car.

Selling From Car

Apples began to be handled in this way in the 90's, and being successful both from the producer's and the consumer's point of view, the practice has grown year by year until today nearly all of us who produce apples in the great state of Missouri (the great apple state of the central west) have either had the personal experience of selling our own apples in this manner or we have sold our apples to the so-called box-car peddler, who has shipped them to some point in Nebraska, Iowa, or elsewhere, where he disposed of them direct to the consumer.

This method eliminates the services of the middle man as there is no unloading and storing to be done, consequently no services to be paid for. It pleases the producer because he gets more money for his apples. It pleases the consumer because he gets more apples for his money.

It is claimed by H. C. Filley professor in farm management of the University of Nebraska that in recent years at least one-half of Nebraska's apple crop has been delivered from the car direct to the consumer without the aid of a wholesale house or commission firm.

Personal Experience

During the past several years I have experienced the selling of apples from the box car in the states of Iowa, Nebraska and Colorado. Some of these were apples which I had grown; I also purchased several cars outright.

I have usually found the people very ready to respond—co-operating with me in every way possible and the results have been as a whole very satisfactory. In some cases however, I have found conditions against me which required some extraordinary effort on my part in disposing of apples in a way which would cover expenses and leave me something of a profit.

I have learned that it pays to secure as much information as possible in advance of shipment before selecting a town, else that particular town may be overstocked with apples. And even with these advance pointers conditions may be entirely different by the time your car reaches destination, for while your car is in transit several cars may have arrived and have been sold in the very town where you had only a week before counted on having the first car of apples in the town.

It is one thing to secure as much advance information as possible before making shipment and it is quite another to be able to secure this information through reliable or disinterested parties.

Information From Agents

I was once considering the advisability of shipping to a certain town in Nebraska where there were two railroads. I did not know a soul in the town so I decided to try my luck with the agents and accordingly, I arranged a night letter as follows:

"Is your town stocked with apples or how is the situation. How many cars have been shipped in on your track? I have a car built Ben Davis ready to ship. Any information will be appreciated, wire answer my expense."

I sent this same letter to each one of the agents.

The next morning I got a reply from one agent which read as follows: "Would not advise shipping here. Town overstocked with apples."

This certainly did not sound very encouraging but I held up my decision in the matter until I could hear from the other agent.

Before noon I received the following:

"No carload apples received; expect a couple cars in on Burlington soon."

I shipped the apples to this town, advertised in the paper; placed some large advertising cards in the bank and other conspicuous places. I hired a man to help me.

When the car was spotted ready for business at 7 o'clock in the morning, there were two men with sacks waiting for apples; others kept coming and by noon we had enough business to keep us both busy. In fact I learned that this was the first car of apples shipped into the town and the people were apple hungry.

Now you are wondering why this one agent wired me that the town was overstocked with apples.

The explanation is this: this agent was related to a certain merchant of the town. This merchant had ordered one or two cars of apples; the agent was playing his part in trying to prevent other apples from coming in so that everybody would be hungry for apples when the merchant's car arrived.

When I left town they were not all hungry and their car had not yet arrived.

Seasons Vary Greatly

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3. The business of a carrier is transportation, and its property may not be subjected against its will to a use not connected with transportation.

4. Discrimination in according or withholding a car peddling privilege is condemned, and a distinction is made between car peddling and consolidated shipments to agents of granges and other farmer organizations.

To Peddle or Not to Peddle

Under this decision box car peddling may be prohibited, and the place where the goods are inspected and sold is made the test of peddling. If the transaction takes place in the car the goods are peddled; if they are inspected and sold at some other place, as in a merchant's store, or in a wagon some distance from the railway right of way, and merely delivered from a car, or are ordered in advance by Grange or elevator company members, then the goods are not peddled. Each person has the right to take away the portion of a shipment which he has arranged for or purchased.

I find that it is usually up to the merchants to see that this law is enforced but I do not find many places where they care to enforce such a law. If the officers are called upon to enforce this law in one case, they are expected to enforce it in all cases, and merchants like to ship in potatoes, apples, cabbages, etc., and sell from the car, and they therefore do not feel like starting the kick.

If however someone does turn in a kick all you have to do is discontinue the taking of orders and money in the car. Go to an elevator, or some nearby place of business, be friendly, give him a bushel of apples and arrange to receive all money there; give the purchaser a written order on the car man for so many bushels. Or if this can not be done, just get a dry goods box, or a table, and set it up somewhere near by just so you are off the railway right of way, and call it your office.

Do all of your business at the box office and pass out the apples from the car door in the usual manner. This will enable you to do business, of course not quite so satisfactorily, but you can sell your apples and no one can molest you.

A valuable service is being performed for the farmers in the San Joaquin Valley, Cal., by the United States Bureau of Soils. A survey has been made with the idea of assisting farmers to determine just what their soil is best adapted to. The report, accompanied by a colored map, shows 39 types of soil.

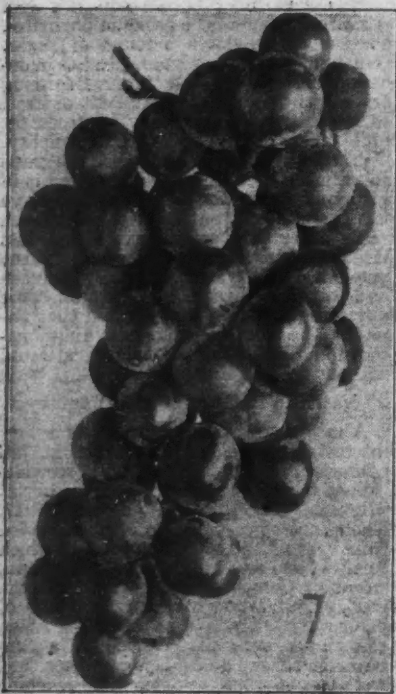
In Lodi, Cal., they are selling wine grapes to commission men for \$25.00 per ton. The contracts are said to be unbreakable and to furnish an unlimited outlet for wine grapes independently of prohibition difficulties. The buyers, in case wine cannot be manufactured in the United States, will dry and ship the grapes to other countries, where, by the addition of the proper solutions, wine will be made from these shipments.

sediment or argols settle to the bottom. The clear juice is then siphoned off and pumped into the pasteurizing kettles again where it is reheated and bottled. These bottles are cleaned, filled, capped, repasteurized and labelled by machinery and the hands of the workmen do not come in contact with the fruit or the juice throughout the whole process.

Many New Companies

Since 1900 many new grape juice companies have been organized and factories built. These are located mainly in New York, Pennsylvania, Ohio, Michigan and California. In 1914, there were one hundred and sixty-five fruit juice companies in this country, several of which had more than one factory. Many companies have operated for one or more seasons and then failed. Abandoned plants are often seen only a few blocks from one that is being run overtime during the season. At Easton, Mich., is an example of this. Within a radius of three city blocks are three grape juice plants, two of which have been abandoned for several years. The third concern is a fine large factory which bears every mark of success. The two that failed may have made just as good product as the third, but they either did not possess the necessary capital or they were unwilling to put sufficient money into the advertising and selling ends of the business.

It has long been said that well grown apples would sell themselves. This is no longer so and grape juice, no matter how well made, will not sell itself. Careful dis-



The Concord Grapes, from Which Grape Juice Is Made

tribution, advertising and salesmanship are necessary.

Prices Paid for Grapes

The Welch people paid ten dollars a ton for their grapes in 1897, but the price was gradually increased until in 1918 it reached \$60. At the present time, the consumption of grape juice would be increased many fold, were it not so expensive. With the rapid advancement of scientific horticulture and the modern methods of making grape juice in large factories, the price should become less to the consumer.

Grape juice is being used more and more for cooking purposes. It has a high food value, beautiful color and pleasing taste. To get some idea of its many uses, one has but to glance through Marion Harland's little booklet of ninety-nine selected recipes for the use of grape juice.

A cheaper but somewhat inferior grape juice is made in the home. This home-made beverage is very acceptable especially during sickness and the hot months of the summer.

We have briefly outlined the origin and development of grape juice in this country and we see no reason why its use should not be greatly increased from year to year. This is but one product from the grape; there are many others, including grape jelly, butter, jam, conserve, ketchup and the newest of all—grape syrup.

In recent years, we have learned that fruit with sugar furnishes just as much energy, is just as satisfying and is more healthful than too much meat. With the high price of meat, we somehow feel that the hundreds of carloads of grapes that

have in the past been made into wine, will and ought to find place as food products in the American homes, and that the owners of these vineyards will still find grape-growing to be a profitable pursuit to follow.

Motor Truck Power Sprayers

By W. E. Britton, State Entomologist, Connecticut

SO FAR as my information goes, automobile power sprayers are not used for orchard spraying in Connecticut. It is possible that some growers have mounted gasoline engine, pump and tank upon an auto truck and use the outfit in spraying their orchards, but if so, I have not heard of it. A few such outfits are in use in spraying shade trees.

The outfit is equipped with a four cylinder continental motor, which furnishes motive power for the truck and also drives the pump. By means of a small sprocket on the transmission in front of the gear box and a large one connected with crank shaft of the pump, by means of a chain, power is transmitted from the auto-engine to the pump.



Spraying an Apple Orchard with Auto Truck Power Sprayer

An improvement on such an arrangement is used in spraying for the gipsy moth in the New England states. The first one was, I believe, devised by the Federal Bureau of Entomology, but similar outfits are now used by the states of Connecticut, Massachusetts and Rhode Island, and a few towns and cities have purchased them for spraying shade trees.

The outfit in question has but one gasoline engine, and that is the one which furnishes motive power to the truck. Power is taken from the transmission by means of chain and sprockets to operate the pump. With most stock automobiles there is no convenient method of taking off the power except by raising the rear axle or some other device.

For gipsy moth spraying much more power is needed than for orchard work, for much of it consists of woodland where the trees are tall and climbing is out of the question, on account of expense. Moreover in many cases the infested trees are on ledges or rocky knolls some distance from roadways and the land is too rough to drive over; in such places a line of hose 1,500-2,000 feet in length may be required. In such a long lead of hose the friction is considerable, and particularly if it points up hill a good pressure must be maintained at the engine in order to overcome the friction and offset the back pressure due to gravity and yet have sufficient pressure at the nozzle to throw the liquid into the tops of the tallest trees.

One inch fire-pressure hose is employed and several men are required to handle this hose when spraying.

The pressure gauge is set for six hundred pounds at the pump, though it is possible to obtain seven hundred. In order to do satisfactory work in solid stream spraying it is necessary to maintain a pressure of 225 pounds at the nozzle, and as friction and gravity greatly reduce this pressure when a long line of hose is used, it is essential to have about 600 pounds pressure at the engine in order to get 225 pounds at the nozzle. The following table shows the engine pressure required to give the necessary nozzle pressure with a one-fourth inch tip and varying hose lengths.

Length of Hose	Pressure at Pump	Nozzle Pressure
100 ft.	240 lbs.	225 lbs.
500 ft.	290 lbs.	225 lbs.
1,000 ft.	340 lbs.	225 lbs.
1,500 ft.	410 lbs.	225 lbs.

The pump is a triple Fitz-henry-Guptill affair, and is furnished with an agitator and device for mixing paste arsenate of lead.

The wheels are thirty-six inches in diameter and fitted with solid tires having a four inch face on the front wheels and seven inches on the rear wheels.

A 400-gallon tank is mounted on the truck to carry the spray mixture. Worthley nozzles of two forms are used, the larger for spraying tall trees and the smaller for orchard trees. A railing above the tank, and a rack at its rear, enable the crew to carry the coils of hose, and the broad running boards give shelf room for transporting considerable quantities of poison, thus obviating in a measure the constant need of supply wagons or trucks.

A suction intake hose provided with strainer makes it possible to fill the spray tank or at least supply the aqueous portion thereof, from any pond, stream, spring or deep well, thus avoiding long hauls when heavily loaded.

Of course such an outfit as this is too expensive for ordinary orchard spraying and it is more cumbersome and more powerful

than is needed for such spraying alone. Yet it can be used to spray orchard trees with excellent results. Where gipsy moth infestations occur in orchards and a portion are sprayed with it, according to the owners, the results are better than in other parts of the orchard where hand outfits were used.

Considering the fact that the pump and tank can readily be disconnected and removed, leaving a perfectly good two and one-half ton general purpose truck, which can be used twelve months of the year, and worth at least one-half its cost, the initial investment is not as great as would appear at first thought.

There is still a demand, I believe, for a lighter, less powerful, and less expensive auto-truck power outfit, and the firm who can build a satisfactory one that will transmit its power to run farm machinery—not only spray pump, but circular and log saw, ensilage cutter, threshing machine, drill wells, and possibly it could be pressed into service for mowing, raking, tedding and loading hay—it will find a ready market. A one-ton truck should furnish adequate power for this kind of work, and ought to sell for from twelve to fifteen hundred dollars.

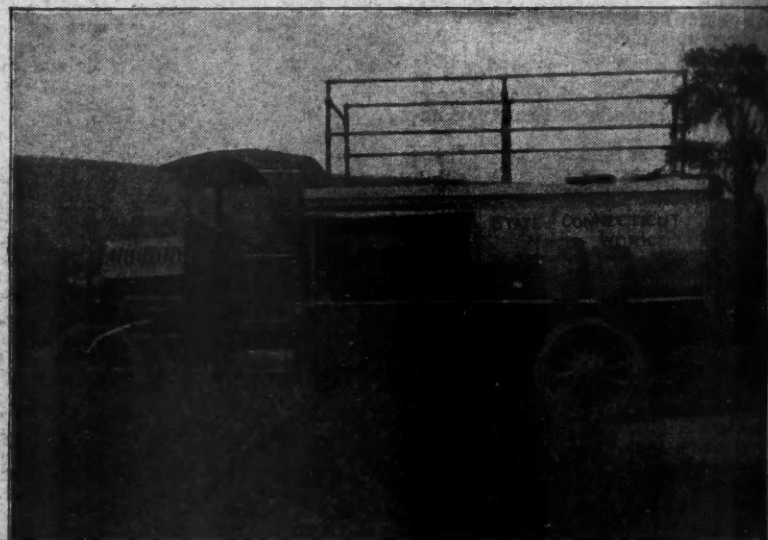
The pictures show the outfit taking on water and also discharging the mixture through hose and nozzle, they also show the men handling the long line of hose.

This outfit, exclusive of hose and nozzles, cost \$4,500.00, three years ago. The present price is \$5,500.00. It uses a great deal of material, but saves on labor, which after all, is the most expensive item at the present time in large scale operations of this sort.

ADVERTISING FLORIDA FRUITS

The board of directors of the Florida Citrus Exchange has voted unanimously to make the advertising assessment for 1919-20 three cents a box on oranges and five cents a box on grape-fruit.

With the same volume of fruit as was handled during the past season, this assessment would yield a fund of approximately \$100,000, but the total sum produced by



Auto Truck Power Sprayer Used in Gipsy Moth Work

is expected to be considerably larger by reason of the greater quantities of both grapefruit and oranges likely to be marketed by the exchange.

PEARS FOR NORTHWEST

Due to the high prices for pears the past year, more pears than apples are being sent in the Hood River Valley. Growers of Bose and Comice, D'Anjou and Bartlett received large returns. G. G. Brown, of the Hood River Experiment Station, who reports many inquiries as to what varieties of pears are suitable for northwestern planting, adds a recommendation to plant Winter Nellis as pollenizers.

AN OLD CHERRY TREE

A cherry tree, growing on the farm of David J. Chambers, near Olympia, Wash., is believed to be the oldest cherry tree in the northwest. It is a real "forty-nine" having been first planted in Milwaukee in 1847, and two years later, 1849, being dug up and taken west for replanting. The tree, a Blackheart, is thus 72 years old. It is still bearing some fruit.

Marketing Apples From the Car Door

By L. A. Cushman, Missouri

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COMMERCIAL orcharding has quite a number of different phases; pruning, cultivating, spraying, harvesting and lastly, selling; each one of these forms a spoke in the wheel which turns round once each year and determines the degree of success in dollars and cents.

It has been said that apples properly stored and grown to perfect maturity and then properly packed will sell themselves. I believe that there is very much truth in this assertion; and yet I think that you will agree that judicious marketing of the crop oftentimes plays quite an important part in swelling the profits as compared with some methods employed.

I have been asked to talk especially in regard to the shipping and selling of apples from the box car.

Selling From Car

Apples began to be handled in this way along in the 90's, and being successful both from the producer's and the consumer's point of view, the practice has grown year by year until today nearly all of us who produce apples in the great state of Missouri (the great apple state of the central west) have either had the personal experience of selling our own apples in this manner or we have sold our apples to the so-called box-car peddler, who has shipped them to some point in Nebraska, Iowa, or elsewhere, where he disposed of them direct to the consumer.

This method eliminates the services of the middle man as there is no unloading and storing to be done, consequently no services to be paid for. It pleases the producer because he gets more money for his apples. It pleases the consumer because he gets more apples for his money.

It is claimed by H. C. Filley professor in farm management of the University of Nebraska that in recent years at least one-half of Nebraska's apple crop has been delivered from the car direct to the consumer without the aid of a wholesale house or commission firm.

Personal Experience

During the past several years I have experienced the selling of apples from the box car in the states of Iowa, Nebraska and Colorado. Some of these were apples which I had grown; I also purchased several cars outright.

I have usually found the people very ready to respond—co-operating with me in every way possible and the results have been as a whole very satisfactory. In some cases however, I have found conditions against me which required some extraordinary effort on my part in disposing of apples in a way which would cover expenses and leave me something of a profit.

I have learned that it pays to secure as much information as possible in advance of shipment before selecting a town, else that particular town may be overstocked with apples. And even with these advance pointers conditions may be entirely different by the time your car reaches destination, for while your car is in transit several cars may have arrived and have been sold in the very town where you had only a week before counted on having the first car of apples in the town.

It is one thing to secure as much advance information as possible before making shipment and it is quite another to be able to secure this information through reliable or disinterested parties.

Information From Agents

I was once considering the advisability of shipping to a certain town in Nebraska where there were two railroads. I did not know a soul in the town so I decided to try my luck with the agents and accordingly, I arranged a night letter as follows:

"Is your town stocked with apples or how is the situation. How many cars have been shipped in on your track? I have car bulk Ben Davis ready to ship. Any information will be appreciated, wire answer my expense."

I sent this same letter to each one of the agents.

The next morning I got a reply from one agent which read as follows: "Would not advise shipping here. Town overstocked with apples."

This certainly did not sound very encouraging but I held up my decision in the matter until I could hear from the other agent.

Before noon I received the following:

"No carload apples received; expect a couple cars in on Burlington soon."

I shipped the apples to this town, advertised in the paper; placed some large advertising cards in the bank and other conspicuous places. I hired a man to help me.

When the car was spotted ready for business at 7 o'clock in the morning, there were two men with sacks waiting for apples; others kept coming and by noon we had enough business to keep us both busy. In fact I learned that this was the first car of apples shipped into the town and the people were apple hungry.

Now you are wondering why this one agent wired me that the town was overstocked with apples.

The explanation is this: this agent was related to a certain merchant of the town. This merchant had ordered one or two cars of apples; the agent was playing his part in trying to prevent other apples from coming in so that everybody would be hungry for apples when the merchant's car arrived.

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2. Tariff items providing free time for unloading, and demurrage charges for a further detention of a car for that purpose, do not embrace the use of the carrier's equipment and station grounds as a place where the carload shipper may transact business with the public for his own profit.

3. The business of a carrier is transportation, and its property may not be subjected against its will to a use not connected with transportation.

4. Discrimination in according or withholding a car peddling privilege is condemned, and a distinction is made between car peddling and consolidated shipments to agents of granges and other farmer organizations.

To Peddle or Not to Peddle

Under this decision box car peddling may be prohibited, and the place where the goods are inspected and sold is made the test of peddling. If the transaction takes place in the car the goods are peddled; if they are inspected and sold at some other place, as in a merchant's store, or in a wagon some distance from the railway right of way, and merely delivered from a car, or are ordered in advance by Grange or elevator company members, then the goods are not peddled. Each person has the right to take away the portion of a shipment which he has arranged for or purchased.

I find that it is usually up to the merchants to see that this law is enforced but I do not find many places where they care to enforce such a law. If the officers are called upon to enforce this law in one case, they are expected to enforce it in all cases, and merchants like to ship in potatoes, apples, cabbages, etc., and sell from the car, and they therefore do not feel like starting the kick.

If however someone does turn in a kick all you have to do is discontinue the taking of orders and money in the car. Go to an elevator, or some nearby place of business, be friendly, give him a bushel of apples and arrange to receive all money there; give the purchaser a written order on the car man for so many bushels. Or if this can not be done, just get a dry goods box, or a table, and set it up somewhere near by just so you are off the railway right of way, and call it your office.

Do all of your business at the box office and pass out the apples from the car door in the usual manner. This will enable you to do business, of course not quite so satisfactorily, but you can sell your apples and no one can molest you.

A valuable service is being performed for the farmers in the San Joaquin Valley, Cal., by the United States Bureau of Soils. A survey has been made with the idea of assisting farmers to determine just what their soil is best adapted to. The report, accompanied by a colored map, shows 39 types of soil.

In Lodi, Cal., they are selling wine grapes to commission men for \$25.00 per ton. The contracts are said to be unbreakable and to furnish an unlimited outlet for wine grapes independently of prohibition difficulties. The buyers, in case wine cannot be manufactured in the United States, will dry and ship the grapes to other countries, where, by the addition of the proper solutions, wine will be made from these shipments.

Your Orchards and How to Make a Profit

Diversified Fruit Production and Orchard-Raised Livestock

By R. E. Miller, Director Idaho Technical Institute

LABOR is to be one of the largest, if not the largest, limiting factor in future successful orcharding. Fruit growers are confronted with the economic utilization of labor as well as the other problems which guarantee profitable production. Practices which conserve the labor outlay should, therefore, merit our closest consideration.

Before the war the questions of orchard culture were largely "settled" but the war with its food crisis has upset some of our staid notions and opened up again this "settled" problem. The ideal western orchard before the war was one blanketed with a dust mulch, followed usually in the fall by a green cover crop. The purpose of the dust mulch being to conserve moisture and aerate the soil.

Clean cultivation has been called "cruel cultivation" by Professor Paddock because by this practice the organic matter is readily "burned" out of the soil by the rays of the scorching sun. Unless this organic matter is returned to the soil, either by plowing under green cover crops or by direct application of manure it is not, many years until we are unable to secure anything but a clod mulch. In other words the texture of the soil depends directly upon the amount of organic matter it contains.

But important as this fact is, it is not as important as the fact that all plant food in the soil is made available for plant use through the action of soil bacteria. Decaying organic matter is the food of these bacteria, and when it is deficient in the soil as a result of being "burned" out by the hot rays of the sun, these bacteria cannot exist in numbers large enough to prepare sufficient plant food to provide for a normal growth of the trees. The result eventually is a decreased fruit yield. In localities of limited rainfall or available moisture during the growing season, this form of orchard culture will undoubtedly prove not only the best practice but the only feasible practice that could be followed with any degree of success.

Many orchards are located in irrigated sections or localities having an abundant rainfall, and the available moisture during the growing season is not the limiting factor. Orchards so located should consider the problem of decreased labor outlay and increased profits as a result of more diversified orcharding.

Three Methods to Follow

The kind of diversification in orcharding to be used is necessarily a local and individual problem but, generally speaking, there are three ways of accomplishing the desired results.

1. Growing non-leguminous intercrops.
2. Growing various types of fruit harvested at different periods.
3. Raising livestock on legume cover-crops.

While intercrops of various kinds rang-

ing from vegetables to grains have proven profitable in young orchards, the question of continued fertility must be considered in mature orchards. In addition to this, the labor outlay is usually materially increased and the market must be very favorable if the profits are to continue.

The growing of various types of fruit harvested at different periods offers one of the best forms of diversification for the fruit grower since by this system the overhead expense can be distributed over an extended period and cash incomes are received at different periods of the year.

ing of legume cover crops has proven more profitable than cutting them for hay.

The experience of Mr. E. A. Gammon, of Hood, Calif., is interesting in this connection. Mr. Gammon's 80 acre irrigated pear orchard was planted, in the fall, to vetch and Japanese clover. In the spring fifteen sows were turned in the orchard to pasture and later a band of Hampshire sheep. The orchard was pastured throughout the season. The books showed a saving in cultivation that year which amounted to \$987, while approximately \$1,000 was cleared on the hogs. Mr. Gammon

sold for \$1,500. Mr. Humphrey has had three orchards of plums and pears on a 300 acre farm, sown to alfalfa not only to save the labor of cultivation but to furnish pasture for his increasing herds.

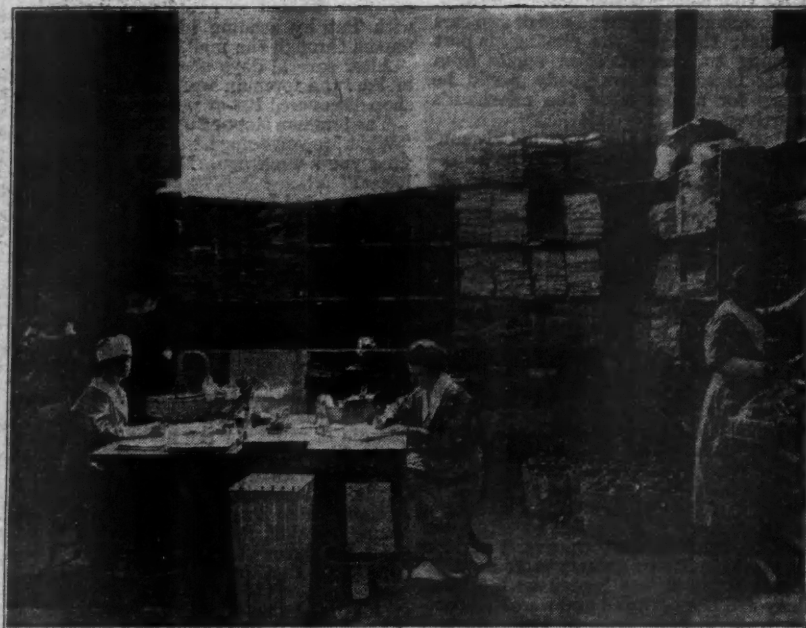
In Irrigated Sections

The Wenatchee irrigated section used to be a staunch adherer to clean cultivation and the dust mulch. One orchard, that of Barney and Williams, however, adopted a permanent alfalfa cover crop. This system has been followed for twenty years. Statistics show that this orchard has one of the largest bearing records of this district. Nineteen boxes represented the average bearing per tree per year from 1907 to 1912 inclusive. The trees are continuing this production. These results have been so definite that today practically seventy-five percent of the Wenatchee orchards are in alfalfa.

Hogs and sheep offer a good diversification for the average orchard under irrigation, the initial investment in foundation stock being small. Some poultry should be found in every orchard and certain orchards favorably located have found large flocks profitable. Dairying on a large scale makes a rather complicated problem for an orchardist, but a few cows will furnish a ready cash product and skin milk forms a valuable part of a ration for either hogs or chickens. Every orchardist, regardless of his location, should produce as much of the food consumed by his family and by his hired help as is possible.

It is interesting to note that more and more orchardists are finding that it does pay to "fool" with one or more of the side lines. The advantages accrued from the use of legume cover crops in the orchard pastured by livestock such as sheep or hogs may be summarized as follows:

1. The saving of time and labor in cultivation.
2. Organic matter in soil protected from burning sun.
3. Larger numbers of bacteria, which make plant food available for trees, develop in the upper layers of soil because of presence of organic matter and moisture.
4. Additional crops grown on land not used under "clean cultivation" system.
5. Otherwise non-available nitrogen of air gathered by bacteria on roots of legumes; used by the legumes; stored in the soil and later used by the fruit trees.
6. The pasturing of intercrops saves time and labor of harvesting.
7. Manure of animals returns fertility used by legumes.
8. Plant food of soil made more available through growth of legumes and manure of animals.
9. Eating cull fruit by animals eliminates many insect and fungus enemies.
10. Increased bearing surface and crop easier to harvest; unnecessary to prune branches high to leave space below the limbs for teams.



Apples are the Convalescing Soldier's Favorite Fruit, and in this Red Cross Storeroom at a Debarcation Hospital there are a Half a Dozen Pails Full Waiting for Distribution

Picking and packing may be accomplished by a smaller crew. Diversification by combinations of fruit culture such as strawberries, bush fruits, cherries, peaches, plums, pears and apples adapted to the locality will do much to eliminate the possibility of lean years. The maintenance of an acreage which guarantees economical production is naturally a problem that enters here.

Live Stock and Fruit

It has long been recognized that a permanent system of agriculture must rest on live stock and this fact should lend weight to the practicability of raising live stock in connection with orcharding. The pastur-

figures that the manure from the hogs and sheep offset any loss in fertility due to feeding. In addition the pear trees bore a bumper crop of fruit, some trees yielding from 30 to 40 boxes. Mr. Gammon says he will continue to intercrop with legumes.

Mr. A. B. Humphrey of Mayhes, Cal., is as well known among livestock breeders as among fruit growers. His Berkshire boar, Grand Leader II, was grand champion of the Panama-Pacific International Exposition and later, with several of his progeny, sold for \$4,500. Mr. Humphrey also raised Star Leader, sired by Grand Leader II, who headed the Berkshire herd of the University of California and later

S. W. Fletcher in the Rhine Valley Vineyards

THE Rhine Valley is famed for its terraced vineyards and its castles. Nowhere is there a better illustration of intensive culture of the grape. The methods by which even the steepest and rockiest hillsides have been brought under cultivation are especially interesting. In many places not only have slopes at an angle of forty-five degrees, or greater, been terraced and planted but also pockets have been cut out of the face of cliffs, and filled with soil brought up from the lower slopes. The terraces are necessary to prevent erosion, or the washing of soil, as well as to provide feeding ground for the vines. The gardeners have covered the surface of the soil several inches deep with broken fragments of slaty rock thus forming a mulch which prevents erosion, absorbs heat and conserves soil moisture.

The labor of many many generations has been expended in terracing these mountains and all the work has been done by hand. It has been practicable to do this here where a man or woman (the vineyard work is done mostly by women) receive only eight or ten cents a day. It would be wholly impracticable in America, where

land is cheap and labor high, as compared with Germany.

There are several reasons why the Germans have thought it worth while to take such infinite pains to terrace these hills; these are concerned with the special requirements of the grape for warmth, congenial soil and frost protection. This fruit, more than any other, loves warmth; hence the vineyards are mostly on southern slopes, where they receive a maximum amount of sunshine. Furthermore, a slope exposed somewhat at right angles to the sun's rays absorbs more heat than level land. Grapes delight in the shaly soil of these vineyards more than in a heavier and richer soil. The quality of the wine is affected to a marked degree by the nature of the soil in which the grapes are grown; the wine from these Rhine grapes is worth several times more than that made from the same variety when grown on heavier soils, or on level land. A still further advantage of the Rhine slopes is the protection afforded from frost. Cold air, being heavier than warm air, drains away from the hillsides into the valley. Proximity to the Rhine is a special advantage because

the river adds vapor of water to the air and thus tempers and moderates the local climate. Some of the most noted fruit-growing districts of the states are located near large bodies of water for the same reason; as the Hudson River Valley and the shores of Lake Ontario, Lake Michigan and Lake Chautauque.

The vines are planted about three feet apart each way and the canes are tied to stakes instead of to a wire trellis, as are most of the grapes in America. This is because the vines are of short growth, being varieties of the European vine grapes, while ours are mostly varieties of native species that are much more vigorous in growth. The only part of America where European varieties are grown to any extent is in California. There they are grown both for dessert and for making into wine or raisins. European grapes can be grown in the south, especially in the gulf states; and even in some parts of the north if covered with soil during the winter; but are very fickle in bearing. Most of the grapevines of France are pruned back very heavily each year, to mere spurs of one or two buds. In the Rhine vineyards two to four

short renewal canes are left, each bearing six to ten buds. The difference in practice is due to difference in varieties and soils. The vines are fertilized mainly with manure, which is carried on the back, in baskets. There is little or no spraying.

It is interesting to know that a large proportion of European grapevines, especially in France, have American roots. A house-like insect called the phylloxera attacks the roots of European varieties in great numbers and sucks the juices of the plants, often killing them. The phylloxera does not seriously affect American grapes; hence it is a common practice in Europe to plant vines with "resistant stocks." A single bud of the desired European variety is grafted on a cutting of an American species; after the cutting has rooted the resulting plant has phylloxera-resistant roots and is a European wine grape above ground.

The Rhine grape growing is of interest to us chiefly as an exposition of intensive culture, in contrast with the extensive culture of America. It is to be admired, as evidence of what can be done, if necessary, with skill and patience—but not copied.

Gasing Trees Against Insect Pests

By Henry Thompson, California

THE SAME poisonous gases that pushed the German hordes back across the fields of France and Belgium are being successfully used in combating dangerous insect pests in American citrus groves. These pests have in the past demanded annual losses ranging into the hundreds of millions of dollars, shortening our food supply of fruit just that much.

The fumigation of plants with hydrocyanic-acid gas for the destruction of insect pests is one of the most important discoveries in the field of insect control. No other known gas so quickly destroys insect life and at the same time has so wide a range of usefulness.

This poison was first used as an insecticide by D. W. Coquillett, an agent of the United States Department of Agriculture, for controlling certain scale insects on citrus trees in California, for which, until that date, no known control was known. The immediate success and rapid development of the gas treatment in California resulted in the almost complete abandonment of spraying as a means of controlling citrus scale insects, and led to the introduction of fumigation into citrus regions of America, as well as into most of the important foreign citrus-producing countries.

Method of Fumigation

Orchard fumigation for the control of citrus scale insects consists of covering the trees with cloth tents, and liberating hydrocyanic-acid gas beneath these tents. The exposure of the insects to this gas for a definite period, varying with the insects to be controlled, will result in their complete destruction. Since hydrocyanic-acid gas is colorless and is one of the most poisonous gases known to man, it is important that it be handled in specially prepared machines, emitting a specified quantity of gas, that the men operating the machines may not be gassed, and that the citrus trees be not killed.

Flat cloth tents of octagonal design are employed for orchard fumigation. These tents are made of standard sizes based on the distance between parallel sides, the sizes ranging from 36 to 81 feet. Tents 36 to 41 feet in size are used for citrus trees up to 10 feet in height; 41 to 45 feet for 11 to 15 foot trees; 45 to 52 feet for 16 to 20 foot trees; 55 to 72 for trees 21 to 25 feet in height.

The number of tents required depends largely upon the acreage of trees to be treated. In California the average commercial outfit contains from 25 to 60 tents. The usual length of exposure is one hour, and under the most favorable conditions one tent will cover 12 trees a night, though the average for the whole fumigation season approximates eight. One tent, therefore, should cover 90 trees, or about one acre, in 11 to 12 days, or 30 tents should cover 10 acres in four days.

Material Used for Tents

The material of which these tents is made must, of necessity, be of the tightest weave possible, comparatively light, and of sufficient strength to prevent tearing when trees are being covered. Heavy stiff tents are not only very difficult to manipulate, but they also break the branches, injure the fruit, and moreover, will not fit closely to the ground around the trees, which permits rapid escape of gas, and defeats the purpose aimed at. The special, closely woven 8-ounce U. S. Army duck has been found superior to any other weave for this purpose.

Either two wooden poles or two derricks are used in placing the tents over trees. A rope and pulley arrangement is placed at the top of the derrick for raising the tent, and the rope is about three times as long as the pole.

Types of Fumigating Machines

A fumigating machine that has been in use in California consists of a large generating drum mounted on two wheels and provided with shafts. Above the generating drums are two tanks, one for cyanid solution and the other for sulphuric acid. The liquid from each of these tanks is conducted to a measuring cylinder, from which it flows through a cut-off valve into a tray suspended within the large generating drum. The resulting gas passes from the generator to the tent through a large hose, while the residue remains on the bottom of the drum.

Another fumigation machine used in California consists of two tanks, one above the other, the lower containing a mixture of equal parts of sulphuric acid and water, while the upper contains the cyanid solution. By the action of suitable pump measured quantities of the cyanid solution are forced into the tank containing the acid-water mixture, and the gas instantly generated escapes to the tented tree through a large hose.

Cyanid of sodium or cynaid of potas-

power to withstand the poison, however, it is necessary in fumigating with this gas to take into consideration the particular plants to be fumigated and their susceptibility to gas injury.

Strength to Use

The foliage and branches of orange, lemon, and grapefruit trees will stand without severe injury a strength of gas sufficient to destroy most of the scale insects which infest them. Apple, peach,



Fumigating California Citrus Fruit Grove

sium, sulphuric acid, and water are necessary for the generation of hydrocyanic-acid gas.

Use Hydrocyanic Gas

The value of hydrocyanic acid for control of citrus pests was first demonstrated to the orchardists of California in 1916 and since then has gained a limited adoption. Some very satisfactory results have been obtained and this method, after standardization, gives promise of wide usage in the control of insect pests infecting citrus trees.

Liquid hydrocyanic acid is condensed from the gas and is transported in iron drums to the groves. The method of application is extremely simple. Liquid hydrocyanic acid is carried in a small tank

pear and other deciduous trees in dormant condition can be fumigated without injury with a strength of gas greater than it would be safe to use on citrus trees.

Fumigation with hydrocyanic-acid gas is especially adapted to the control of scale and white flies, which live a part of all their existence attached to the plants, and, as practiced at the present time, orchard fumigation is confined almost exclusively to the control of this class of insects on citrus fruit trees.

Much experimental work with fumigation against various citrus pests in California and Florida has resulted in definite records of the successful control of these insects. Insects such as the white flies and armored scales, which can be destroyed in



Orange Grove That Has Been Fumigated

which is mounted on a platform with a pump. The liquid is first measured, drawn into the pump, and finally discharged through a small pipe fitted with a spray nozzle. Simplicity of handling, which does away with the necessity of bringing cyanid and sulphuric acid into the field, and the elimination of tent burning pots, as under former methods, are a few of the advantages of the new method.

Hydrocyanic-acid gas is fatal to insects when the dose is sufficiently large and the exposure long enough, but a much greater strength of gas is necessary for the destruction of some insects than for others. Were it not for the destructive action of the gas on the plants, its field of usefulness would be increased greatly. Since different species and varieties of plants vary in their

practically all stages of development, can be fumigated at any time the trees are in a condition best fitted to resist injury. In general, soft or unarmored scales are very resistant to hydrocyanic-acid gas in the mature egg stages. Orchardmen find it is advisable, therefore, to fumigate these pests during their breeding season while the insects are in the immature stages.

In fumigation with untreated cloth tents practically all of the gas escapes before the expiration of one hour, unless the weather is very damp. Experience in orchard fumigation has demonstrated that an exposure of 45 minutes for most insects gives practically as good results as that of an hour. Where eggs are present, the one-hour exposure results in slightly more effective work.

Many of the scale insects can be destroyed easily by fumigation at any stage of development. These insects may be fumigated at any time of the year, and include such species as the red, yellow, and purple scales. Other scale insects are very resistant to treatment in the egg and adult stages. This type of insect, which includes such species as the black, hemispherical, and soft brown scales, must be treated in the early stages of development, when they are least resistant to the gas.

But the citrus trees are more tender at certain seasons than others. For this reason it is necessary to fumigate at well defined seasons. The most suitable season for orchard treatment in California is from the first of August to the middle of December; in the Gulf Coast states, from the first of December to the last of February.

The cost of fumigating an orchard depends primarily on the size of the trees and the dosage rate used in treatment. The average citrus fruit orchard in California, where fumigation is practiced, requires an expenditure of from \$25 to \$40 per acre for a single treatment. Large seedling trees are more expensive, while young trees cost less. Estimates given by contract fumigators usually are based on the cost of the two factors, chemicals and tree covering. The cost of the 45-foot tents of special 8-ounce fumigating duck, together with the other equipment necessary to complete the outfit, is about \$1,500. This may seem a heavy cost to some fruit men in other districts, but the cost is comparatively small to the grower who thus insured himself of a first-class crop bringing from \$5,000 to \$25,000 per season.

SWEET APPLES

By Benj. Buckman, Illinois

A few lines in a recent issue of the AMERICAN FRUIT GROWER, does not, as I see it, give quite enough "latitude" to the "sweet apple."

It is true that apples with more or less acidity are used for cooking and dessert in preference to the sweets, yet some prefer sweet apples for dessert, also for baking. Personally I like sweet, also sub-acid, and even occasionally relish one with a piquant cranberry flavor, or—not to mince words—say bitter. But I want them all tender and juicy.

The Sweet Bough mentioned is of high, spicy flavor, fully "B. good," and the fruit is of good size and fair appearance. But here the tree blights badly, worse than Yellow Transparent; often blight kills the tree. But it is worth planting for home use, and the hogs gobble up the wind-falls.

Other Sweet Apples

Golden Sweet is an early July apple here, and has a long season of say a month. It bears well and lives to be a very large tree, requiring 40 to 45 feet of room. The quality is not so high as Sweet Bough, but it is passable, say from "G to H good," and if the color were red, or even a rich yellow, it would sell well.

High Top Sweet, often sold as Sweet June, while of slow, upright growth, lives to a good old age, and is fruitful enough. It is of medium size and of "B good" quality at its best. All children like it. It is a midsummer variety that needs only 25 feet of room.

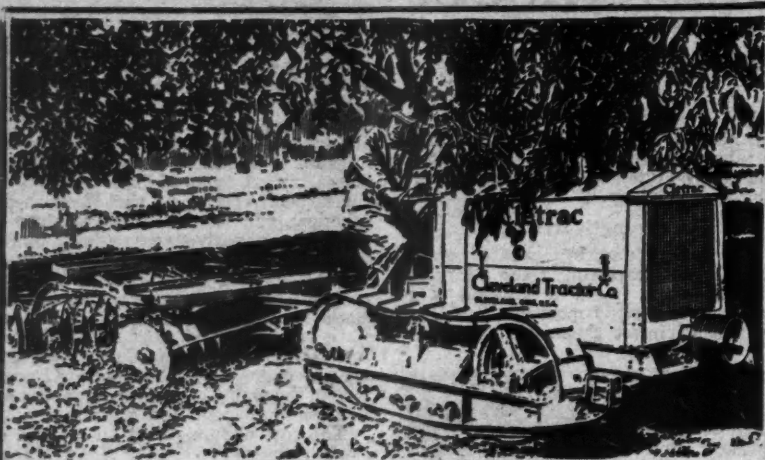
For late summer Paradise Sweet is of as high flavor as Sweet Bough, but it is only moderately productive here. The tree is vigorous, symmetrical and healthy, needing about two rods of room.

Kentucky Sweet is also a late summer to fall apple, that is close to "Best" in quality, as I taste it. But it is only moderately productive here, and not so long-lived as Golden Sweet. It is of good size and has a good, rich, red color. This variety is not well known in nurseries and I was ten or more years in finding out its true name for I had bought it as a Bailey Sweet.

Productiveness is often a matter of soil and climatic conditions, but this is not so marked perhaps in apples as with strawberries.

There are some varieties of apples one would deem sub-acid at gathering time, but sweet at full maturity. The Evening Party, a favorite with me, is one of these, and Delicious is rather a puzzler in its last stage of ripening.

On the whole a commercial orchard should have few, if any, sweet apples as a rule. But for home use and for stock they are not to be despised.



Powerful and Compact Ideal for Orchard Work

A TRACTOR to be profitable in orchard work must have plenty of power—but it must be a *small* machine, capable of working up close to trees, capable of getting under low hanging branches, capable of turning sharply, capable of good hillside work.

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It is the embodiment of compact power. It is small. It is easy to handle among fruit trees. It turns in little more than its own length. It is ideal for hillside work because of its tank type of construction, which enables it to go practically anywhere without slipping, sliding or packing down the soil.

The Cletrac burns kerosene—and is very miserly in the quantity it consumes. Distillate or gasoline can be used equally as well if desired.

"Selecting Your Tractor" is the name of an attractive booklet that every orchard owner should have. It gives a rich fund of information about tractors and their uses. Your copy is ready. Send for it today—or ask the Cletrac dealer for one.

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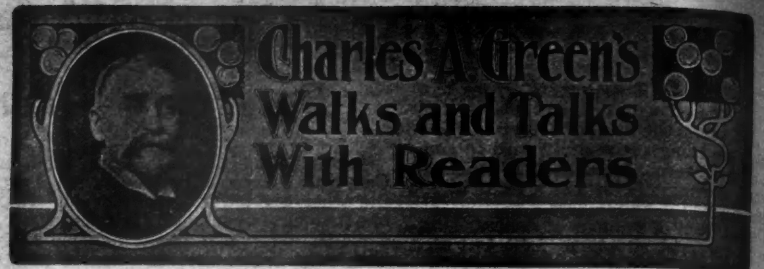
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The Old Farmstead

"The mother may forget her child
That smiles so sweetly on her knee;
But I'll ne'er forget thee, Glen Carn,
And all that thou hast been to me."
—Robert Burns.

THE ABOVE lines express my feelings toward the old farm homestead on which I was born and on which I spent so many happy days. Not only do I enjoy greatly the attractions of the farm, but my entire life has been influenced greatly by my rural experiences as a child and youth. I carry in my mind vivid recollections of happy days upon the old farm. Particularly do I recall the nutting season, the sugar-making, the days of the coming of the thrasher and buzz saw, the hunting and fishing, I recall the ripening of the different varieties of apples in the orchard and of the old peach trees, plum and pear trees, and the gooseberries and currants, the bed of asparagus and the old black cherry tree and the red cherry tree, all of which grew in my father's fruit garden near the dwelling.

The dooryard itself was small. I can tell you precisely what was growing in this little front yard which never felt the thrill of the lawn mower. The principal bush was a currant bush with yellow blossoms, bearing black sweet currants, the foliage being golden hued. At the west were June roses, that is natural roses. There were yellow lilies, and in a little bed near the corner were the snapdragons, hollyhocks, paeonies, bleeding hearts, fuchsias, and lastly a spruce tree that I pulled out of the mucky lowlands near the schoolhouse and planted in this favored spot.

As someone says "God pity the man who has no memories."

The Nursery Catalogue

As I expect to set out an apple orchard in Northern Pennsylvania (Wayne county near southern boundary of New York) I recently wrote to the Pennsylvania Experiment Station for some authoritative data on the Winter Banana apple, a variety with which I am not personally familiar. I was led to make these inquiries about the Winter Banana, after reading the very alluring description of the numerous virtues of the apple and the tree in your catalogue which I have before me.

Your presentation of this apple, and the report to me on it from the Pennsylvania Experiment Station (a true copy of which I enclose) you will note, do not at all agree. If this report from the Pennsylvania Station is true, then your description must be accepted as misleading to the prospective planter, to whom, as you know, the varieties of apples he selects for his commercial orchards, and on which his bread and butter will finally depend to a considerable extent, is a matter of considerable importance. In a small family orchard mistakes are of no great importance.

In my opinion, and in this I think most prospective customers will agree with me, the catalogue descriptions of each variety of apples should be complete, its defects, its limitations and all its own peculiar characteristics should be briefly but comprehensively set forth, as well as its strong points. In other words the catalogue should be a true and absolutely reliable guide to the buyer. Then with all the data before him the patron can select his varieties with far greater knowledge than is now generally possible. This would in many cases save the orchardist in the future from much keen disappointment and failure, and from well founded and bitter resentment against the nursery from which he had obtained his trees.

Take for example the Northern Spy, you very properly describe it as an apple of the highest quality, and as possessing other good qualities which it does possess; but you neglect to warn your patrons that it is exceedingly slow coming into bearing.

Now that is an important characteristic of the Northern Spy for practical purposes, and it is the nurseryman's duty to appraise his patrons of this fact. You can imagine the bitter rage of an orchardist who had planted very largely to Spys expecting to get fairly profitable returns after the trees had reached their 10th year, to find that he still had several years to wait for anything like profitable returns. Had he been properly informed at the time he purchased his trees, he would have rearranged his selection, and put in certain other varieties, known to be young bearers, to furnish apples during the years he is waiting for his Spys to come into bearing.

From the point of view of the buyer of apple trees it is my belief that your catalogue could be made of far more value and far more popular in the long run, by giving a full and very accurate description of each variety including all positive virtues and all limitations and defects, soil, locality, and altitude characteristics, rather precise data as to just what may be expected under given conditions, in quantity of fruit from that tree up to 12 years after planting. All of these data do exist, and am I wrong in claiming that it is the duty of the nurseryman to briefly set them forth for the benefit of his customers?

May I ask your comments on the enclosed copy of the letter from Pennsylvania Experiment Station on the Banana apple for northern Pennsylvania.

G. L. McKINNEY.

C. A. Green's Reply: The above is a remarkable letter, one of the most suggestive that I have ever received on the subject, but the man who could prepare a catalogue with descriptions and comments such as the writer asks for would be a god. No human being could reach such an apex of pomological wisdom.

Catalogues are laboriously prepared with the assumption that the person receiving the catalogue is competent to digest it and has already accumulated considerable knowledge on the subject of varieties and of the proper location for orchards as regards the locality under consideration, the various kinds of soils, whether upland or lowland and a thousand other details. The nurseryman could not possibly make up a catalogue that would be fully ample to the needs of a planter who was entirely or nearly entirely lacking in experience. The most the nurseryman can do is to call attention to some of the features of each variety. A volume such as our correspondent asks for would not only require the experience of an expert so well informed that no one could qualify for the position at the present date in the world's history, but the volume would be of great size and would of necessity be a lifelong work.

Pomological writers of large experience have attempted to prepare such a book as our correspondent asks for, but they have failed though they have incurred the expense of many thousand dollars in the preparation of such book.

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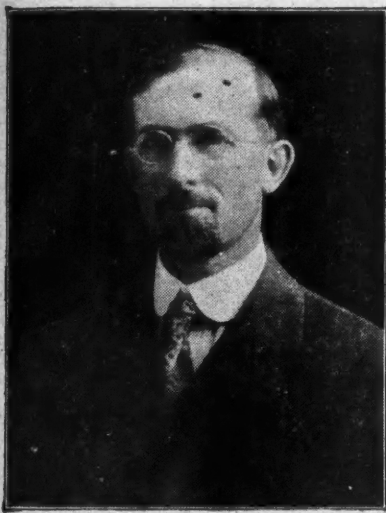
Continued on page 30

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Beyond this, there is the actual drawing together of farm and town which is the result of good roads frequently traveled. The automobile was the pioneer that demanded good roads for the pleasure seeker. The truck followed, and where some had hesitated to vote for large expenditures simply to provide smooth roads for joy-riders, the hesitation vanished when it was realized what it would mean to any community to have roads over which heavily-laden trucks might safely run.

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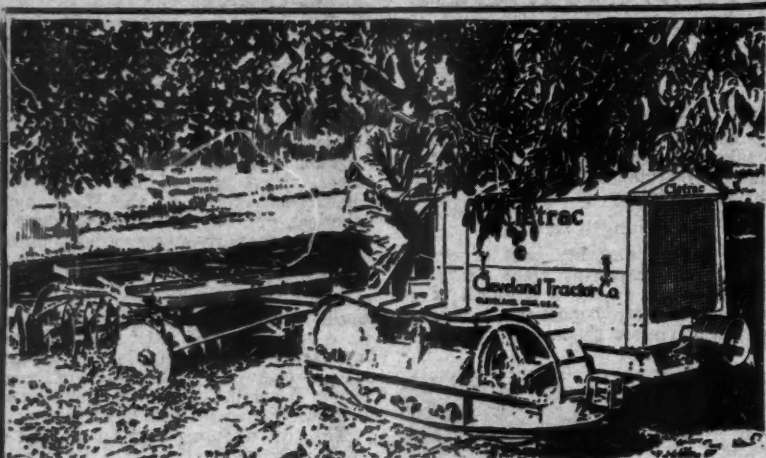
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We would like to see fruit on the market in such quantities and at such prices, that the poorest man might supply his family with what is now more or less of a luxury, but with the rapidly growing population and the rather slow coming into bearing of various fruit trees, there is no prospect of greatly reduced prices for many years to come, even if then.



Powerful and Compact Ideal for Orchard Work

A TRACTOR to be profitable in orchard work must have plenty of power—but it must be a *small* machine, capable of working up close to trees, capable of getting under low hanging branches, capable of turning sharply, capable of good hillside work.

The Cletrac Tank-Type Tractor meets *all* of these requirements—and more.

It is the embodiment of compact power. It is small. It is easy to handle among fruit trees. It turns in little more than its own length. It is ideal for hillside work because of its tank type of construction, which enables it to go practically anywhere without slipping, sliding or packing down the soil.

The Cletrac burns kerosene—and is very miserly in the quantity it consumes. Distillate or gasoline can be used equally as well if desired.

"Selecting Your Tractor" is the name of an attractive booklet that every orchard owner should have. It gives a rich fund of information about tractors and their uses. Your copy is ready. Send for it today—or ask the Cletrac dealer for one.

The Cleveland Tractor Co.

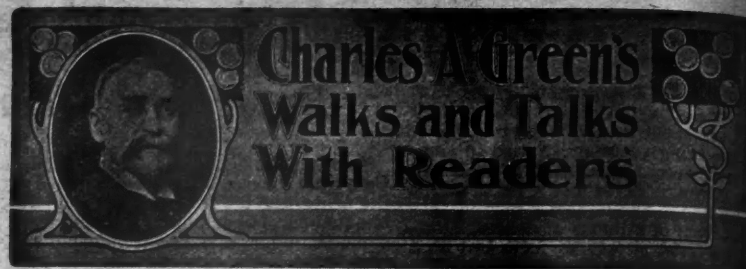
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Cletrac

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The Old Farmstead

"The mother may forget her child
That smiles so sweetly on her knee;
But I'll ne'er forget thee, Glen Carn,
And all that thou hast been to me."
—Robert Burns.

THE ABOVE lines express my feelings toward the old farm homestead on which I was born and on which I spent so many happy days. Not only did I enjoy greatly the attractions of the farm, but my entire life has been influenced greatly by my rural experiences as a child and youth. I carry in my mind vivid recollections of happy days upon the old farm. Particularly do I recall the nutting season, the sugar-making, the days of the coming of the thrasher and buzz saw, the hunting and fishing, I recall the ripening of the different varieties of apples in the orchard and of the old peach trees, plum and pear trees, and the gooseberries and currants, the bed of asparagus and the old black cherry tree and the red cherry tree, all of which grew in my father's fruit garden near the dwelling.

The dooryard itself was small. I can tell you precisely what was growing in this little front yard which never felt the thrill of the lawn mower. The principal bush was a currant bush with yellow blossoms, bearing black sweet currants, the foliage being golden hued. At the west were June roses, that is natural roses. There were yellow lilies, and in a little bed near the corner were the snapdragons, hollyhocks, paeonies, bleeding hearts, fuchsias, and lastly a spruce tree that I pulled out of the mucky lowlands near the schoolhouse and planted in this favored spot.

As someone says "God pity the man who has no memories."

The Nursery Catalogue

As I expect to set out an apple orchard in Northern Pennsylvania (Wayne county near southern boundary of New York) I recently wrote to the Pennsylvania Experiment Station for some authoritative data on the Winter Banana apple, a variety with which I am not personally familiar. I was led to make these inquiries about the Winter Banana, after reading the very alluring description of the numerous virtues of the apple and the tree in your catalogue which I have before me.

Your presentation of this apple, and the report to me on it from the Pennsylvania Experiment Station (a true copy of which I enclose) you will note, do not at all agree. If this report from the Pennsylvania Station is true, then your description must be accepted as misleading to the prospective planter, to whom, as you know, the varieties of apples he selects for his commercial orchards, and on which his bread and butter will finally depend to a considerable extent, is a matter of considerable importance. In a small family orchard mistakes are of no great importance.

In my opinion, and in this I think most prospective customers will agree with me, the catalogue descriptions of each variety of apples should be complete, its defects, its limitations and all its own peculiar characteristics should be briefly but comprehensively set forth, as well as its strong points. In other words the catalogue should be a true and absolutely reliable guide to the buyer. Then with all the data before him the patron can select his varieties with far greater knowledge than is now generally possible. This would in many cases save the orchardist in the future from much keen disappointment and failure, and from well founded and bitter resentment against the nursery from which he had obtained his trees.

Take for example the Northern Spy, you very properly describe it as an apple of the highest quality, and as possessing other good qualities which it does possess; but you neglect to warn your patrons that it is exceedingly slow coming into bearing.

Now that is an important characteristic of the Northern Spy for practical purposes, and it is the nurseryman's duty to appraise his patrons of this fact. You can imagine the bitter rage of an orchardist who had planted very largely to Spys expecting to get fairly profitable returns after the trees had reached their 10th year, to find that he still had several years to wait for anything like profitable returns. Had he been properly informed at the time he purchased his trees, he would have rearranged his selection, and put in certain other varieties, known to be young bearers, to furnish apples during the years he is waiting for his Spys to come into bearing.

From the point of view of the buyer of apple trees it is my belief that your catalogue could be made of far more value and far more popular in the long run, by giving a full and very accurate description of each variety including all positive virtues and all limitations and defects, soil, locality, and altitude characteristics, rather precise data as to just what may be expected, under given conditions, in quantity of fruit from that tree up to 12 years after planting. All of these data do exist, and am I wrong in claiming that it is the duty of the nurseryman to briefly set them forth for the benefit of his customers?

May I ask your comments on the enclosed copy of the letter from Pennsylvania Experiment Station on the Banana apple for northern Pennsylvania.

G. L. McKINNEY.

C. A. Green's Reply: The above is a remarkable letter, one of the most suggestive that I have ever received on this subject, but the man who could prepare a catalogue with descriptions and comments such as the writer asks for would be a god. No human being could reach such an apex of pomological wisdom.

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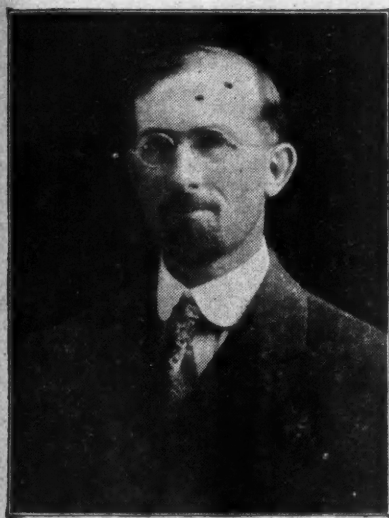
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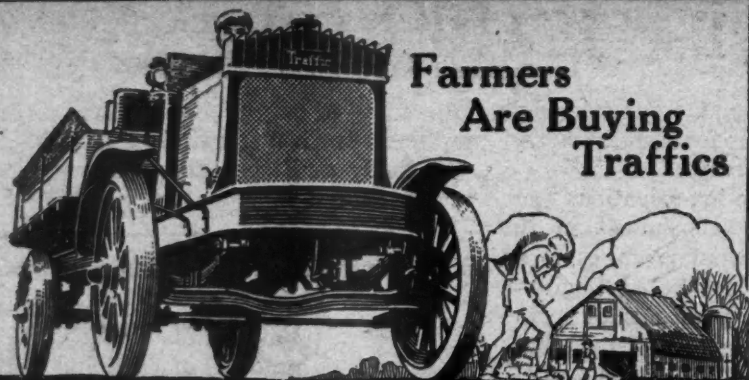
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Farmers
Are Buying
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Traffic Truck

4,000 LBS. CAPACITY

\$1395

It is merit and not price that sells the Traffic to farmers. Our policy of putting quality and service above price has resulted in enormous sales.

Building more 4,000 lb. capacity trucks than any other factory in the world has made its low price possible.

While the low price is a super-inducement and saves hundreds of dollars in first cost—there are no higher quality trucks of the Traffic's capacity on the market—it is the lowest priced 4,000 lb. capacity truck in the world.

Specifications

Red Seal Continental 3 1/2 x 5 Motor; Covert transmission and multiple disc clutch; Bosch magneto; 4-piece cast shell, cellular type radiator; drop forged front axle with Timken Roller Bearings; Russell Rear Axle, internal gear, roller bearings; semi-elliptic front and rear springs; 6-inch U-Channel Frame; Standard Fisk

Tires, 3 1/2 x 5 front, 3 1/2 x 5 rear; 133-inch wheel base; 122 inch length of frame behind driver's seat; oil cup lubricating system; chassis painted, striped and varnished; driver's lazy-back seat and cushion regular equipment. Pneumatic cord tire equipment at extra cost. Chassis \$1395 f.o.b. St. Louis.

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Traffic Motor Truck Corporation, St. Louis, U. S. A.

Largest exclusive builders of 4,000 lb. capacity trucks in the world

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The big oranges, the rich rosy apples the kiddies like so well, the American Beauty rose—all are the products of experts. Growers and florists who know exactly how, as well as the kind of pruning shears to use—Pexto.

The kind they use is none too good for you. You want your trees, shrubs and hedges to grow and thrive.

And Pexto Pruning Shears will help you get these good results. You can identify the Pexto Dealer by Pexto Tool Displays—displays of specially selected kinds.

A Practical Pruning Guide

The Little Pruning Book by F. F. Rockwell, a widely known writer with practical pruning experience, tells how, when and where to prune for the most vigorous and healthy growth. Sent prepaid for 50 cents (48 pages).

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100% American for 100 Years
FOUNDED IN 1819

Picking, Ripening and Storage Dates for Apples

APPLES are usually picked from the trees before they are ripe enough to eat. The fruit must be matured in the sense that it is fully developed, but winter apples are never ready to eat until some weeks or months after they are picked.

You can tell when an apple is ready to pick by the appearance of the green. If immature, it is a hard, dead color. The amount of red on an apple is a fair guide. The seeds usually turn brown when the apple is mature, although there are exceptions to this rule. The stem separates from the tree readily when the apple is mature, while when it is green the spur or twig is apt to break off with the apple.

Apples must be thoroughly mature, but not green nor too ripe for keeping in storage. Green fruit will wither when put in storage and will not keep any longer than over-ripe fruit which gets soft, mealy, and tasteless after a few months in storage.

The following table is divided so as to show the approximate dates in the southern states and in the northern states. The time varies from one year to another from one season to another. It depends upon the altitude, amount of rainfall, and the temperature throughout the growing season.

Varieties	IN NORTHERN STATES			IN SOUTHERN STATES		
	When to pick	When ripe enough to eat	Latest Cold Storage Limit	When to pick	When ripe enough to eat	Latest Cold Storage Limit
Early Summer						
Livland	July 10-30	July 13-Aug. 1	Aug. 15	June 1-20	June 9-30	July 15
Raspberry	July 10-30	July 13-Aug. 1	Aug. 15	June 1-20	June 9-30	July 15
Yellow Transparent	July 10-30	July 13-Aug. 1	Aug. 15	June 1-20	June 9-30	July 15
Midsummer						
Red Astrachan	July 22-Aug. 25	July 30-Sept. 3	Sept. 20	July 17-Aug. 15	July 23-Aug. 3	Sept. 1
Melton	July 23-Aug. 26	Aug. 6-Sept. 17	Jan. 1	July 15-Aug. 20	Aug. 1-Sept. 5	Dec. 1
Wilson Red	July 20-Sept. 1	Aug. 15-Sept. 15	Sept. 15	July 9-Aug. 9	July 24-Aug. 9	Sept. 1
Duchess	Aug. 1-22	Aug. 5-26	Sept. 15	July 12-26	July 16-30	Sept. 1
Fall						
Gravenstein	Aug. 22-Sept. 22	Aug. 26-Sept. 26	Dec. 11	Aug. 2-25	Aug. 9-Sept. 1	Oct. 15
Maiden Blush	Aug. 20-Sept. 10	Sept. 5-Oct. 15	Dec. 15	Aug. 10-Sept. 1	Aug. 25-Sept. 15	Nov. 1
Wealthy	Aug. 2-Sept. 5	Aug. 16-Sept. 17	Jan. 15	July 25-Sept. 1	Aug. 10-Sept. 15	Dec. 15
Early Winter						
King David	Sept. 6-Oct. 2	Oct. 1-25	Jan. 15	Aug. 14-Sept. 2	Oct. 1-10	Dec. 1
McIntosh	Sept. 3-22	Oct. 15-25	Jan. 15	Aug. 18-Sept. 13	Sept. 20-30	Dec. 1
Grimes Golden	Sept. 8-Oct. 28	Nov. 1-10	Jan. 15	Aug. 23-Sept. 18	Oct. 5-15	Dec. 1
Wagener	Sept. 20-Oct. 6	Nov. 15-25	Feb. 1	Aug. 31-Sept. 20	Oct. 25-Nov. 5	Dec. 15
Jonathan	Sept. 20-Oct. 30	Nov. 15-25	March 1	Aug. 28-Sept. 20	Oct. 20-Nov. 5	Feb. 1
Winter						
Black Ben	Sept. 28-Oct. 28	Dec. 1-10	May 1	Aug. 30-Sept. 30	Nov. 1-10	Mar. 15
Delicious	Sept. 30-Oct. 30	Nov. 15-25	Mar. 15	Sept. 5-Oct. 5	Oct. 20-30	Feb. 15
Winter Banana	Oct. 3-17	Nov. 15-25	Mar. 15	Sept. 18-25	Oct. 20-Dec. 5	Feb. 15
Winesap	Oct. 18-Nov. 3	Dec. 15-25	April 1	Sept. 24-Oct. 13	Nov. 20-Dec. 5	Mar. 1
R. I. Greening	Sept. 20-Oct. 15	Nov. 20-30	April 1	Aug. 28-Sept. 20	Oct. 25-Nov. 5	Mar. 1
Spitzenburg	Oct. 4-23	Nov. 15-25	April 1	Sept. 13-Oct. 3	Oct. 25-Nov. 5	Feb. 15
Rome Beauty	Oct. 6-25	Dec. 1-10	April 1	Sept. 10-30	Nov. 5-15	Mar. 1
Stayman	Oct. 6-20	Dec. 15-25	April 1	Sept. 10-Oct. 5	Nov. 20-30	Mar. 1
York Imperial	Oct. 6-30	Jan. 1-10	April 1	Sept. 20-Oct. 15	Nov. 25-Dec. 5	Mar. 1
Northern Spy	Sept. 18-Oct. 4	Dec. 5-15	April 15	Aug. 30-Sept. 18	Nov. 15-25	Mar. 15
Paragon	Oct. 4-Nov. 3	Jan. 1-10	April 15	Sept. 18-Oct. 18	Dec. 5-15	Mar. 15
Baldwin	Sept. 23-Oct. 23	Dec. 1-15	May 1	Aug. 29-Sept. 23	Nov. 6-21	April 1
Yellow Newtown	Oct. 5-29	Jan. 20-30	May 1	Sept. 22-Oct. 17	Jan. 1-5	April 15

The Sun Dried Black Cap

By Ellen E. Tallman, Oregon

THE Oregon Black Cap has brought a big price this year, thirty or thirty-five cents when dried, wholesale, or pooling.

Twelve years ago fruit growers saw big money in the sun dried black cap at 22 cents, and farmers put out acres and acres of them. The next year the price dropped to 20 cents, and kept dropping, till it had reached 16 cents. Then in 1912, after a seige of cold, wet weather, when the commercial prune driers were forced to run in order to finish the drying of the already much handled berry, the finished product sold for eleven cents. Farmers just about paid their pickers, and were glad to sign contracts for green berries, covering a term of five years, to a well known California cannery at four cents a pound, boxes and crates furnished free; the fruit to be canned at our local cannery per contract, growers reserving the last picking for sun drying, the weather being hot and settled by that time.

East Not Hot and Dry Enough

It is not wise for the easterner to dry his berries, for the reason that they require a hot, dry temperature. Dampness causes them to mold, and rain on the half dried berries makes them crumble easily. Great care must be exercised in the handling, so the berry will stand out round, like so many beads or pellets, when ready to sack.

Sun dried berries are spread evenly and thinly on wire trays of fine mesh about 36 inches square, and laid on the ground in rows, or collectively—but not stacked. After the hot sun has beaten down on them for two days they may be condensed

by doubling up two or three trays to make one, and left to continue drying two or three days longer, according to the heat of the sun, and the moisture in the berry. It is an easy matter to determine when they are just right, by taking a handful and squeezing lightly; if they show a coloration on the hand, leave for a few hours longer.

A fair shrinkage would average three to one, but of course the longer the berry left on the bush the drier it becomes; harder to pick, hence oftentimes utterly impossible to get pickers to stay by the job.

Price for Picking

Berry picking is woman's work, the average man is clumsy at it, and as the pay is 1 1/2 to 2 cents a pound one can readily see that it takes many pounds to make good wages a day, but large families, with camping privileges and facilities, can make good; no child, if accompanied by an older, being too small to help fill mother's or sister's box.

In this locality the average fruit grower raises a few acres of black caps as a fall crop, between cherries and harvest; and one rarely sees a farm between Portland and Salem without its square of purple or green.

A pecan grove of 100 acres of 15 to 16 year old trees, was recently sold near Albany, Ga., for \$100,000. This grove, known as the Gill grove, is but the nucleus around which the purchasing company will extend its operations.

Grower

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When ripe to eat	Latest Cold Storage Limit
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-30	July 15
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-Aug. 9	Sept. 1
-30	Sept. 1
Sept. 1	Oct. 15
Sept. 15	Nov. 1
Sept. 15	Dec. 15
0	Dec. 1
-30	Dec. 1
5	Dec. 15
Nov. 5	Dec. 15
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"I OUGHT to know the advantages of pneumatic truck tires for farm and country road hauling. I use Goodyear Truck Tires of two kinds—solids on one truck and big pneumatic cords on the other. My experience shows that the farmer is much better off to use the pneumatics. They save time, labor, money all around."—Ernst Mueller Farmer, St. Joseph, Mo.

THE grower quoted here has found that his vegetables have been delivered in much better condition since he has used a truck cushioned by big Goodyear Pneumatic Cord Truck Tires.

He has observed that lettuce and tomatoes, particularly, are no longer disturbed by so much vibration and bouncing as previously endangered them in a solid-tired truck.

Indeed, previously lettuce had been crushed considerably in transit, due to jarring on solid tires, resulting in a continual loss of income which now is protected by the cushioning of the pneumatics.

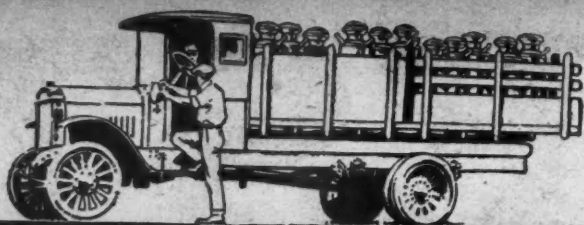
In addition, the traction of the Goodyear Cords for winter hauling and their activity in long-distance tripping further convinced this user of their

greater all-around fitness and economy for this work.

The widespread adoption of Goodyear Pneumatic Cord Truck Tires among agriculturists naturally has followed their development as the first pneumatic cord tires to be made in all the sizes needed for farm trucks.

The Goodyear Tire & Rubber Co.
Akron, Ohio

GOODYEAR
AKRON



Chassis Prices
 1 1/2 ton \$1965
 2 1/2 ton \$2365
 3 1/2 ton \$3465
FOB Allentown

The Motor Truck bought to-day without Electric Starting and Lighting will be out-of-date to-morrow

Farm Profits and Farm Transportation

Make a husky, enduring Bethlehem the connecting link between your Farm and your Market. Increase your profits by adding to your farm equipment a husky, enduring transportation system.

The economically powerful engine has a pull that will take any load over any road. Electric Starting and Lighting means economy of operation and makes night work easy and practicable.

The Internal Gear Drive is the answer to the bad roads problem. Bethlehem Design and Bethlehem Construction have proved themselves to thousands of farm owners. The nearest Bethlehem Dealer will demonstrate a Bethlehem your way.

BETHELEHEM
 — INTERNAL GEAR DRIVE —
MOTOR TRUCKS
 — DEPENDABLE DELIVERY —
 BETHELEHEM MOTORS CORPN. ALLENTOWN, PA.



TRACTION

is the big word in the Tractor Industry today. The worth of a tractor is being judged by the amount of TRACTION it develops. Power on a tractor is only valuable as far as it is convertible into TRACTION.

The MONARCH TRACTOR has the combination that wins. It has power—plenty of it—and TRACTION. Every ounce of power is applied to actual TRACTION by means of the MONARCH endless tracks. There is no power wasted—it does not sink in or pack the soil. It is applied in the proper, scientific manner. The tracks have an irresistible grip on the ground that laughs at hills and makes light of loads.

The MONARCH LIGHTFOOT 16-9 H.P. is the logical tractor for the fruit grower. Of convenient size, which enables it to be worked where it is impossible to work horses.

Powerful enough to pull from two to three bottoms. Turns in its own length.

Write for MONARCH TRACTOR literature. It gives hard facts in a worth while fashion. Ask for "PERFORMANCE" BOOKLET.

GENERAL TRACTORS, Incorporated
WATERTOWN WISCONSIN

Kindly mention American Fruit Grower when writing to advertisers

Dry Lime and Sulphur as Compared to Liquid

By A. L. Melander, Washington State College

DRY SPRAYING materials are more convenient to transport and keep than liquid or paste sprays, and hence as a matter of trade competition manufacturers have been desirous of placing such materials on the market. In the case of the sulphur-made sprays, two dry forms are being made, one where the sulphur is combined with soda and sold under the trade names of soluble sulphur compound and spraysulphur, the other a true lime-sulphur manufactured by the Sherwin-Williams Company.

In the early days of lime-sulphur each fruit grower had to make his own spray, cooking it in diluted form because with existing recipes a strong lime-sulphur would crystallize. Then by modifying the formula it became possible to prepare lime-sulphur in concentrated form, and factories took to making strong lime-sulphur solution for shipment. Whenever the attempt was made to increase the concentration further or to cook to dryness the lime-sulphur changed chemically, taking up oxygen and throwing out sulphur, and was so disintegrated as to be nearly valueless. The Sherwin-Williams Company, however, discovered a most ingenious and practical method of preparing lime-sulphur in dry form. A small amount of sugar added to a highly concentrated lime-sulphur solution was discovered to retard the chemical disintegration, so that the liquid could then be evaporated in vacuo and marketed in powder form.

When lime, sulphur and water are boiled together a series of progressive chemical reactions take place, whereby the original ingredients are changed, principally into calcium sulphide, calcium polysulphide, calcium thiosulphate, calcium sulphite and calcium sulphate. When the lime is in chemical excess (i. e., more than half as much lime as sulphur), the relative amount of thiosulphate is increased. When the sulphur is in chemical excess (i. e., more than twice as much sulphur as lime), the relative amount of polysulphid is increased. The best grades of lime-sulphur have the largest amount of polysulphid present, amounting to about 90 per cent. When lime-sulphur is applied as a spray it takes on oxygen; the polysulphid is converted into thiosulphate, the thiosulphate into sulphite and finally the sulphite into sulphate. It is this chemical change that is supposed to give to lime-sulphur its value as an insecticide, for the taking up of oxygen is a sort of chemical suffocation. Obviously, then, the polysulphid is the most valuable ingredient, for it can take on more oxygen than the other chemicals further along in the series.

Dry Lime-Sulphur Leaves Sediment

When Sherwin-Williams dry lime-sulphur is dissolved in cold water a certain amount always remains as sediment. This sediment consists of sulphur and more or less chalk, possibly of value against mildew, but of no worth against scale or aphids. An old sample, or one that has been opened, will have more insoluble material than a fresh lot. It is claimed that this insoluble material sometimes obstructs strainers and nozzles. If the dry lime-sulphur is boiled in water more or less of the sulphur goes again into chemical solution. A recent analysis by the State Chemist of Washington showed in round numbers the following interesting facts:

	In Cold Water	In Boiling Water
Insoluble.....	17%	0.4%
Polysulphid sulphur.....	42%	59.0%
Thiosulphate and other combined sulphur.....	8%	5.0%
Lime.....	25%	26.0%
Sugar.....	2%	2.0%

The Sherwin-Williams Company claims that the sugar stabilizer enhances the value of its product when sprayed on the trees. We know that a solution of dry lime-sulphur will not oxidize as rapidly as the standard liquid lime-sulphur, but this may be regarded as a theoretical disadvantage rather than an advantage, if the insecticidal value of lime-sulphur is due to its ability to absorb oxygen. Until this point is proved it would be unwise to be influenced by this argument.

The printed leaflets distributed by the Sherwin-Williams Company state that "a

barrel of liquid lime-sulphur solution weighs approximately 600 pounds, and 100 to 100 pounds of Sherwin-Williams dry lime-sulphur will accomplish the same results." This statement is obviously fallacious, but is made in order that a 100-pound drum of the dry material can compete in selling price with the barrel of liquid. A barrel of standard lime-sulphur concentrate contains approximately 185 pounds of sulphur and 65 pounds of lime in solution in 320 pounds of water. All 250 pounds of the ingredients are soluble and there is the maximum amount of polysulphid sulphur immediately available. In the drum of dry lime-sulphur there are about 65 pounds of actual sulphur and 26 pounds of lime, but of the 100 total pounds about 20 pounds consist of sugar or material insoluble in cold water. Unless there is evidence to the contrary a pound of calcium polysulphid should be regarded as a pound, whether sold in dry form or dissolved in water.

Two Drums of Dry to One Barrel of Liquid Needed

On the basis of actual sulphur content it would take two drums of dry lime-sulphur to be equivalent to a barrel of concentrated liquid, unless the material is boiled into solution two and one-half drums would be closer equivalent. On the basis of similar strengths of spray solution, therefore, the cost of dry lime-sulphur at present prices is too great to offset the possible advantage of the dry over the liquid.

During 1917 and 1918 the Washington Experiment Station carried on some comparative spraying tests on the San Jose scale, in which the dry lime-sulphur was used. These tests indicate that the Sherwin-Williams product has merit, comparing well with the equivalent strengths of the standard liquid form. The fact that the Sherwin-Williams Company can adduce testimonials showing beneficial effects from a weak spray can be paralleled with almost any insecticide. We have repeatedly noticed surprising results from extremely weak solutions, but no one feels ready seriously to recommend ultra-weak sprays for general practice. The fruit grower who depends upon using ten pounds of dry lime-sulphur to fifty gallons is taking a big risk. The weakest lime-sulphur that can be generally recommended for winter spraying tests 33 degrees, by the Baumé hydrometer, and contains about ten pounds of sulphur and five pounds of lime in each fifty gallons. This is equivalent to a dilution of three and one-half gallons of factory-made concentrate in fifty gallons. To produce a similar strength nearly twenty pounds of dry lime-sulphur would be ordinarily required unless the material were boiled into solution, in which case a trifle over fifteen pounds would suffice.

Weighing the pros and cons in comparing liquid and dry lime-sulphur the advantages of the dry form consists in convenience in transportation and avoidance of worries about freezing and leakage. The disadvantage include expense, possibility of deterioration, difficulty of solution and waste of valuable sulphur unless the powder is boiled into solution—Better Fruit.

THE BETTER SIRE CAMPAIGN

An organized crusade for the improvement of the live stock of the United States started October 1. The slogan will be "Better Sires—Better Stock." The object will be to have farmers replace their scrub stock with pure bred or high grade and they will be encouraged to do this by the use of only good pure-bred sires for breeding purposes. The agencies co-operating in putting on this campaign are the United States department of agriculture, state agricultural colleges, state livestock officials, live-stock associations, county agents, farmers' organizations, the farm and livestock papers.

This is a movement that every farmer should be interested in and he can help it along by doing his share towards improving the live stock on his farm. If he owns and uses a scrub sire, he should sell him and buy one of the right kind. To make the campaign a real success it will be necessary for every farmer to do his part.

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MIDWEST UTILITOR

Runs Harrows Cultivates

Mows Lawns

Pulls Small Loads

Runs Wood Pumps Water

Grinds Feed

Turns Grindstone

Runs Separator Washing

Machine or Churn

MIDWEST UTILITOR

TRADE MARK

WHAT would you give for a "horse" that never ate, never had to be curried, watered or bedded, and never required the services of a veterinarian?

You would gladly give \$345 for such a "horse," especially if it embodied a practical, self-propelled gas engine of the finest type for stationary work.

Every farmer, truck raiser, fruit grower, florist, gardener, golf club, or estate owner in America has immediate need for the Midwest Utilitor. It strikes you instantly as the logical and practical substitute for animal power.

An absolutely dependable and satisfactory substitute for one horse, minus the waste and worry of keeping a horse, with the self-propelled gas engine thrown in

—that, in a sentence, is the Midwest Utilitor.

No utility in recent years, to our knowledge, has created such a profound impression—wherever its usefulness is demonstrated people accept it. Can you use a Midwest Utilitor on your place? Write for illustrated, descriptive catalog showing the Utilitor in practical use.

The Midwest Utilitor distributor and dealer Franchise is being sought by progressive merchants in practically all parts of the country as a most valuable and substantial concession. Possibly no dealer has been appointed in your territory. Write or wire today for complete information. Please address Sales Division R and give bank references.

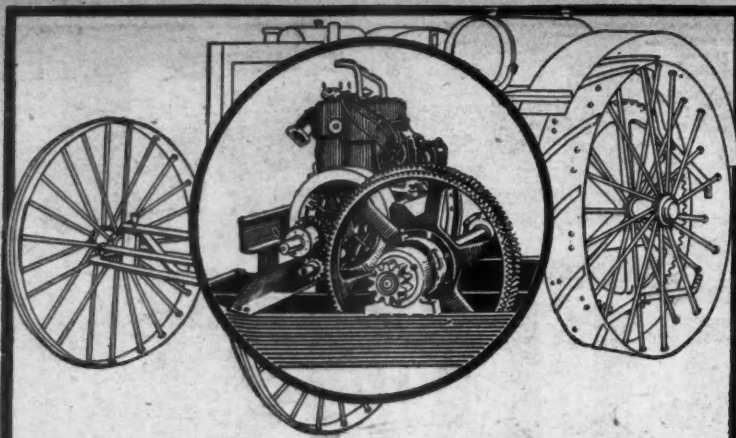
MIDWEST ENGINE COMPANY

INDIANAPOLIS, U. S. A.

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Dependable Power



Direct Drive Conserves Power in

12 H. P. on
Draw-Bar

25 H. P. on
Belt Pulley

THE
HUBER
Light Four

Draws three
bottoms

Turns an acre
an hour

TRACTOR economy and tractor power depend largely on the proportion of the power developed by the motor that is delivered to the draw-bar.

In simplicity and economy the direct spur gear drive of the Huber Light Four is unequalled. There are no bevel gears—simply a friction clutch and spur gear reduction to the driving wheels.

Other reasons why the Huber develops such large power in proportion to its weight are: the high wheels roll easier and afford a larger area of "traction grip"; center draft conserves power by avoiding "side pull"; high-grade extra strong materials reduce weight.

These features are the result of 20 years' development. They are behind the Huber reliability that has created thousands of satisfied Huber owners.

Write for "The Tractor in the Making". It tells the interesting history of tractor development.

THE HUBER MFG. CO. 217 Center St. Marion, Ohio

Canadian Branch, Brandon, Manitoba

Makers also of the famous Huber Junior Thresher.
Some good territory is still available for live dealers.

Weight 6,000 pounds;
pulls three 14' bot-
tom plows; 12 h. p.
delivered to the draw-
bar; 25 h. p. at the
belt; Waukesha four-
cylinder motor; Per-
fect Radiator; Hyatt
Roller Bearings;
burns gasoline, kero-
sene or distillate; cen-
ter draft; two speeds,
2½ and 4 miles
per hour.

Note two trees in this row missing. Compare
size and appearance of trees with those at right,
planted in blasted beds—drawn from photograph.



Trees grow faster and stronger in BLASTED beds

"I found that trees planted in beds blasted with Atlas Farm Powder did twice as well as those in spade-dug holes," writes J. J. Funk, Webb City, Mo.

"1200 trees and 400 grape vines planted in blasted beds grew more in a year than others in spade-dug holes had grown in three years," writes F. M. Reeder, Charles Co., Md.

Any one can blast beds for trees with Atlas Farm Powder. The work is easy, quick and efficient. Remember that ordinary explosives will not give the same results as Atlas Farm Powder, and insist upon having Atlas, the Original Farm Powder, for your tree-bed blasting, land clearing and other agricultural work. Our book, "Better Farming with Atlas Farm Powder," will show you how to save and make many dollars. The coupon or a post card mentioning this paper will bring it by the first mail.

ATLAS POWDER CO., Wilmington, Del.
Dealers everywhere. Magazine stocks near you.

Atlas Farm Powder
THE SAFEST EXPLOSIVE

The Original Farm Powder

ATLAS POWDER CO.
Wilmington, Del.

Send me "Better Farming with Atlas Farm Powder." I am interested in explosives for the purpose before which I mark "X."

- ☐ Stump Blasting
- ☐ Boulder Blasting
- ☐ Subsoil Blasting
- ☐ Tree Planting
- ☐ Ditch Digging
- ☐ Road Making FL 9

Name _____

Address _____

The Cost of Hauling Fruit by Motor Trucks

By Edwin B. Wayland, Virginia

WE HAVE between 1,000 and 2,000 tons of freight to move annually, most of it for 5½ miles haul to our shipping point. This freight is principally fruit, slack cooperage, orchard supplies and many miscellaneous items.

Our roads are very rough and rocky, rising 300 feet in the first mile to the top of a divide, then dropping 400 feet down again to the rolling floor of the valley that we cross for the rest of the way to the railroad. Our maximum grades are from 12% to 16% in places, and 8% for mile averages. In winter they are a sea of mud.

It seemed doubtful to me whether any motor truck could operate successfully under our conditions. Certainly none but the very best could.

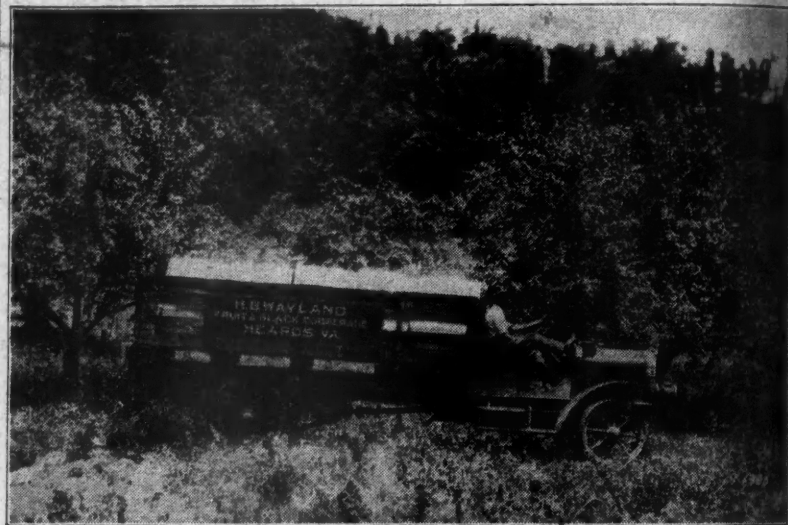
I worked out a comparison of cost of hauling with a motor truck and with our standard 4-mule teams, approximating conditions with my figures as closely as I could. This seemed to show a safe margin

378 loads (counting some light loads on back-hauling, etc.) aggregating a total weight of 2,028,710 pounds, using 635 gallons of gasoline and 95 quarts of cylinder oil.

This gives us the following averages:
3.40 Miles per gallon of gasoline.
22.74 Miles per quart of cylinder oil.
5367 Pounds as an average load (counting light back trips).

5.71 Miles as an average length of haul.
The total repairs consisted of replacing a broken porcelain in one spark plug.

I enclose a copy of the figures worked out to show comparison we made between motor and mule freighting, as they may be of interest. We are now starting on our second season. As far as we can tell from our experience these figures are about as close to the truth for our conditions as we can well come now. Our tire expense has been slightly higher than expected on account of advance in rubber, and our drive



3-Ton Truck Used by H. B. Wayland in the Blue Ridge Mountains of Virginia

in favor of a truck provided my figures would anything like hold water and provided the truck would keep working.

The next thing was to determine what truck to tackle. Only a few of the old-line makes with the most miles and the most time to their credit seemed eligible. Of these few makes, one seemed best for our conditions because it was used in the largest fleets, it seemed to have the greatest rugged simplicity with fewer modern innovations, and the best service system within our reach. This was determined on facts alone as far as possible, salesmen being strictly avoided.

Then I advised the manufacturers of this truck that we were going to buy one of their trucks provided our project was considered feasible after inspection by one of their traffic experts. Sent them the figures worked out for their truck and asked their criticism. The traffic expert and the criticism both came. Our project was declared to be entirely feasible, and our figures to be entirely too high—especially as regards depreciation, since we would give the truck only 50,000 miles as a total life on our roads and the manufacturers insisted that 100,000 or 150,000 miles would be amply conservative.

The truck was finally delivered to us by the railroads rather late last season. A 3-ton chain drive especially equipped with a 45-horse-power motor for our mountain grades.

A Five Months' Record

In five months we ran this truck two thousand one hundred and sixty miles, when winter set in and closed our roads. Our work for it was of the roughest type, using it not only on our regular road freighting but on logging over narrow mountain trails on short hard hauls as well.

Two things we have done with the most scrupulous care, selecting a quiet and steady driver particularly for those ends: Thorough Lubrication and No Overloading.

In running these 2,160 miles we hauled

cost on account of many short hauls we made that are not normal. Our depreciation, I believe, is shown too high; also our repairs to truck; for in neither of these can we see any indications yet of reaching the expense we expected. However, on the whole, the variation is so small as to indicate only inappreciable changes.

No time was lost from trouble on these first 2,160 miles except a few minutes on two different occasions when trash in gasoline choked the flow until it was cleaned out.

Fixed Charges Compared

The one most important point in the economy that we have found is not merely in the saving over mules in the cost per ton mile. This 10½¢ per ton on 1,000 tons (approximately) hauled last season, is only \$105.00 multiplied by our average haul of 5.71 miles, or \$599.55 total. The true economy, in our case, is noted when we compare the fixed charges of the truck with that of the mules.

These fixed charges are based on working 200 days per year. Yet many of those 200 days teams are worked not because they show a profit by doing so but because they show less loss than by standing idle. This because our hauling work is very irregular—sometimes very heavy and sometimes almost nil.

For illustration, using the figures from our sheet, take one of the 200 days when we can get only \$3.00 gross value out of the work of a team. Shall we work it or not? If the team stands in the stable it costs us \$5.22 and we get nothing, so we lose \$5.22. If we put it to work it costs us \$7.60 and we get \$3.00, losing \$4.60. So we have got to lose in either case, but lose less by sending the team out to work.

On the other hand it costs us only some \$393.00 fixed charges on a truck for an entire year. The fixed charges are only 22.2% of the total charges per mile. With mules they are 68.7%. Therefore we are in position to hold our motive power idle in

Continued on page 18

Kindly mention American Fruit Grower when writing to advertisers

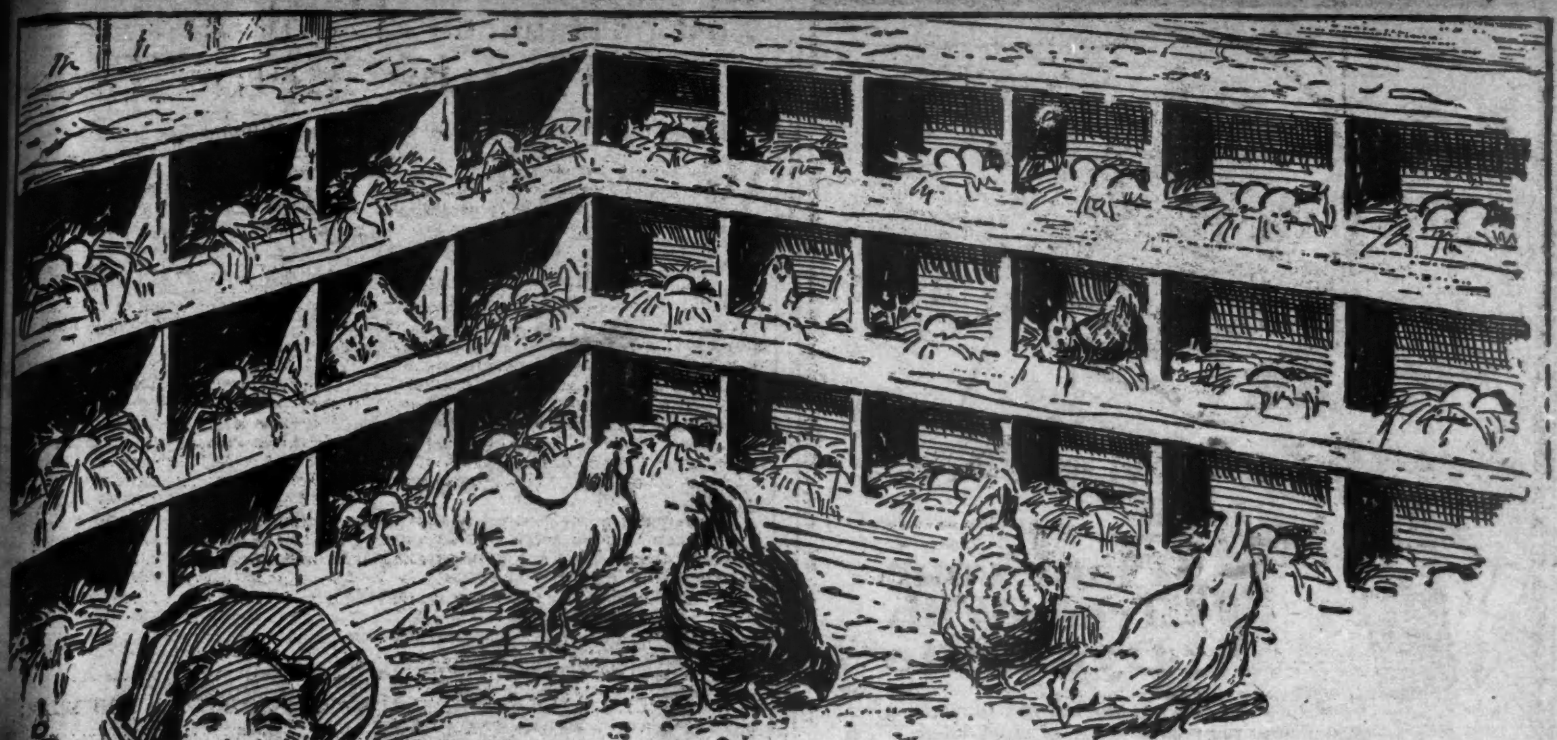
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Eggs From Every Hen

Mrs. Ella Hopkins writes: "I have had wonderful success with 'TWO for ONE,' the last 17 days I got an egg from every hen."

A WORD to the WOMAN on the FARM

DEAR MADAM:-
As the woman on the farm, the care of the chickens is in your hands. Friend husband does not pay much attention to the poultry end. He is concerned with his horse, his cattle and his crops. He leaves the chickens to you, and the amount of money you make out of your flock solely up to you.
Now, ask yourself, do you look after your poultry-raising as well as your husband looks after his interests? Are you as up-to-date in caring for your chickens as your husband is in caring for his horse, cattle and fields? Or are you still pursuing the old-fashioned method of letting the chickens shift for themselves?
When your husband wants a new threshing machine, he buys it. When he finds it advisable to trade in his old automobile for a new one, he doesn't hesitate. When he wants a new hog pen, a new cattle barn or silo, he goes right ahead and gives his orders. When he hears of a stock food that is good for cattle he gives it a trial. When he learns of a new tonic for hogs, he is eager to see what it will do for his herd. In other words, he is always alive to every opportunity to secure better results and make more money.
You and Your Chickens
Now let us see what you do.
Looking over your favorite farm paper or an evening you see an advertisement that arouses your interest. You turn to friend husband and say: "John I see an egg tonic advertisement which seems to do fine work according to the letters printed here. I think we should try it for our chickens. We're feeding them a lot of high priced corn and we're not getting anywhere near as many eggs as I think we should. I believe I'll just send for some of this tonic and give it a trial."
"Oh look," says John, "sounds too good to be true. Don't pay any attention to it."
And so usual, you abide by your husband's judgment and continue to plod along in the old-fashioned way.
John forgets that he uses stock foods and tonics for his cattle and hogs. He forgets that it is to new discoveries and new improvements that he owes much of his success as a farmer. He forgets that you, as the caretaker of the chickens, have just as much right to try the better results as he has in his work.
Of course, it is not that your husband is opposed to your making more money out of your flock. He is simply too busy with other matters to give serious consideration to chickens' tonic. But is this quite fair to you?
Probably you depend on your chickens for your pin money, as many a woman does. And you surely have the right to try to make as much as you can.

Egg Tonic Has Come to Stay

There is no doubt about it, but a good egg tonic means more eggs. This has been proven over and over again. As a result, egg tonic will soon be used as universally as stock foods and hog tonics. The time is here when poultry raisers have to recognize this fact. They should not be misled by "wise" friends and neighbors who don't believe doing things any way but the old-fashioned way.

"TWO for ONE"

We know what "Two-for-One" will do for you. That is why we want you to try it. We don't make any money on a trial \$1.00 or \$2.00 box. The first order sold to a customer is sold at a loss. It is on the repeat orders that we make a profit. We are willing to stand a loss on the first order simply to get poultry raisers to try "Two-for-One". We know that once it is tried, the flock-owner will buy more and more.

Ask yourself—could we for one minute think of selling the first order of "Two-for-One" at a loss if there was a question as to the merit of this egg tonic. No indeed! We know the success of "Two-for-One" and that is why we depend on future orders for our profit.

Since you have nothing to lose, and much to gain, you owe it to yourself to give "Two-for-One" a trial.

KINSELLA COMPANY

\$5,000 Egg Laying Contest

Have you entered our \$5000.00 egg laying contest? If not do so right away, its free to all users of "TWO for ONE." You not only increase your egg production but you may win one of the big cash prizes we are giving every month. Write us today for particulars.

Money-Back Guarantee!

Don't take our word for it. "TWO for ONE" is sold under the distinct guarantee that if you are not entirely satisfied you get your money back. Take advantage of this offer and send for a box of "TWO for ONE" today.

Only \$1.00 a box, or, \$2.00 for large box containing as much as three \$1.00 boxes—enough for an entire season. This costs you 1-15 of a cent a day, per hen, or less than 1¢ a dozen for the additional eggs you will receive from your flock.

Make Lazy Hens Lay

POULTRY raisers who have not given some thought to increasing their egg production this fall and winter, are making a big mistake. Present indications are, the price of eggs will be very high, and if the owners of laying hens do not make an effort to profit by these conditions they will regret it later, particularly when they hear of the large profits being made by their next door neighbor. If there ever was a time when a little extra attention should be given to the poultry yard, it is now. Do not delay. A few pennies spent wisely today will bring you back dollars tomorrow.

"TWO for ONE" World's Greatest Egg Maker

"TWO for ONE" is the marvel of all egg tonics. It is the most remarkable producer of eggs ever known to the poultry world. "TWO for ONE" is making records every day in egg production that were never before believed possible. Flock owners all over the country are amazed with the results. The most experienced poultry experts say they have never seen the like of it.

"TWO for ONE" is not a mere food. It is an egg tonic in the truest sense of the term—a scientific preparation in concentrated tablet form—the result of scientific research and experiment. Every factor entering into the matter of egg production was scientifically studied.

Winter Eggs

As a result you have in "TWO for ONE" a tonic that conditions the hen for the utmost in laying capacity—that builds muscle and bone—that stimulates active functioning of the hen's reproductive organs—that insures fertile eggs and 100% hatchings—that makes the lagard lay and increases the production of active layers. A tonic that gets more eggs for you, winter and summer than you ever thought possible.

Mail This Coupon—NOW!

KINSELLA CO., 27 LeMoyn Bldg., Chicago, Ill.

Gentlemen—I want to increase the egg laying ability of my hens, make money out of my chickens and take advantage of the high prices that will be paid during the coming fall and winter. So please find enclosed 1.....for a box of "TWO for ONE" as checked below:

(Check in squares opposite also attach)
Small Size (Including War Tax) \$1.00 ☐
Large Size (Including War Tax) \$2.00 ☐

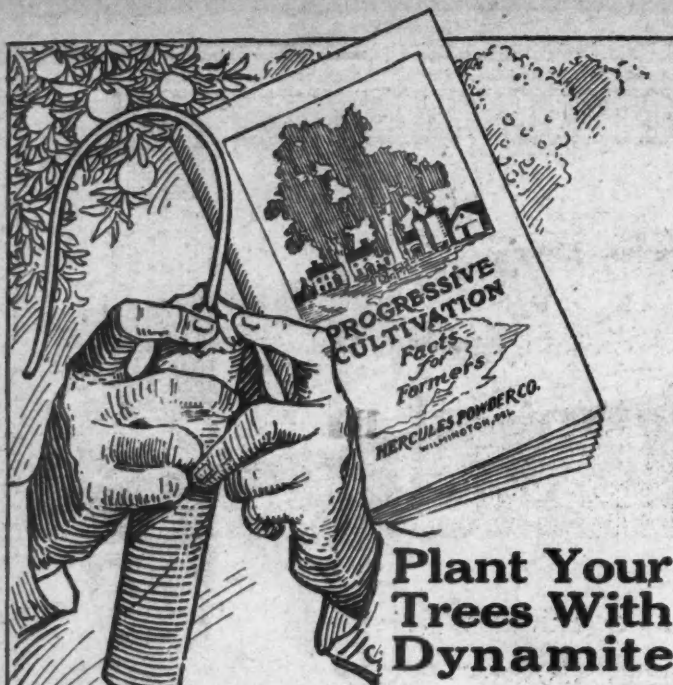
This order entitles me to entry in your \$5,000.00 egg-laying contest, of which you are to send me full particulars, and my money is to be returned if I am not entirely satisfied with the tonic.

Name.....

Address.....

112 Hens—1800 Eggs
Mrs. Harper writes: "I wouldn't be without 'TWO for ONE' for the world; my 112 hens laid 1800 eggs in 1 month."

KINSELLA CO., 27 LeMoyn Bldg., Chicago "The House That Returns Your Money if Not Satisfied"



Plant Your Trees With Dynamite

Send for this book. It will tell you of ways in which you can save days of back-breaking work by using dynamite on your farm. Send for it today—you can't get it too soon. You will need it before you plant that new orchard.

HERCULES DYNAMITE

is one of the most valuable helps to the farmer and orchardist. With dynamite you can blast the holes for your new trees instead of digging them in the old-fashioned, laborious way. With it you can cultivate your old orchards by blasting between the rows. It will dig your ditches and clear your stump land.

Sign the coupon printed below and mail it to us now and we will send you a copy of our 68 page, illustrated book, "Progressive Cultivation." This book has been an invaluable help to thousands of farmers and orchardists by telling them of the many ways in which dynamite can be used on the farm. Send for it and let it help you to lighten your labors and swell your bank account.

HERCULES POWDER CO.

75 West 10th St.

Wilmington

Delaware

Hercules Powder Company, 75 West 10th St., Wilmington, Del.

Gentlemen:—Please send me a copy of "Progressive Cultivation."

I am interested in dynamite for _____

Name _____

Address _____

Crying Baby Doll FREE
She is an awfully noisy baby. You can hear her all over the house. Sounds just like a live baby. Wears a long white dress, and baby bonnet. We send her free, by parcel post paid, for selling only six easy selling jewelry novelties at 10c. each. We trust you. Simply send your full name and address to JONES MFG. CO., DEPT. 36 ATTLEBORO, MASS.

Free THIS NOVA-TONE TALKING MACHINE
Case Mahogany finish, enameled parts, no motor to get out of order, excellent reproduction, enjoyment for all. Sell 12 boxes. Mouth-to-Mouth. Great for cuts, burns, influenza, etc., Retains \$5 and the machine is yours. Guaranteed. Records free. Order today. Address: U. S. Co., Box 470-Greenville, Pa.

Use Your Auto!

to GRIND YOUR FEED
FILL YOUR SILO
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SHELL YOUR CORN
PUMP YOUR WATER
ELEVATE YOUR GRAIN



Ward Work-a-Ford

Can be used with Ford, Overland, Dodge, Buick and Chevrolet 400 cars and Fordson Tractor. Your automobile has a powerful engine—it will outlast the car and you might as well save your money and use it to do all your farm work. Now on three or transmission. Hooks up in 5 minutes. No permanent attachment to car. Cannot injure car or engine. Friction Clutch Pulling on end of shaft. Ward Governor, run by fan belt, gives perfect control. Money back if not satisfied. Ask for circular and special price. **WARD MFG. CO., 2828 N. St., Lincoln, Neb.**

RED SEAL DRY BATTERY
A Battery Suitable for Every Use
SPARK STRONGEST LAST LONGEST

Reliable Farm Power With RED SEAL Dry Batteries

Send for this FREE Book. Tells you how to get the most power out of a gas engine. Electrical catalog also free. **MANHATTAN ELECTRICAL SUPPLY COMPANY, Inc.** 186 S. Wabash Street, CHICAGO New York St. Louis San Francisco Jersey City St. Louis Ravenna, O.

Cost of Hauling by Motor Trucks

Continued from page 16

slack times with a vast deal more of economy when it is in the shape of a truck than when it is in the shape of mules, and put it to work to earn a profit and not—a great part of the time—to avoid a greater loss.

American Fruit Grower

Please let me repeat that this is applicable to our conditions, but may be very true for others. Our hauling is necessarily intermittent. At certain rush seasons, as in fruit, we must have it. At other seasons we must get along with as little expense as possible. If the truck had not replaced two 4-mule teams we would have been as badly off with it—if not worse—than we would have been without it. But we got rid of the mules.

COMPARISON OF HAULING COSTS

3-Ton Motor Truck and 4-Mule Team of 2-Ton Capacity

3-TON MOTOR TRUCK. FIXED CHARGES PER YEAR:

Interest at 6% on \$4,700.00, First Cost of Truck	\$282.00
Interest at 6% on \$300.00, First Cost of Body & Equipment	18.00
Fire Insurance, 1 1/2% on \$5,000.00	75.00
License	18.00

Total Fixed Charges per Year	\$393.00
Total Fixed Charges per Truck-Mile at 4,000 miles per year	.10

OPERATING COSTS PER MILE:

Tires, 7,000 Miles for \$350.00	.05
Gasoline, 3.3 Miles per Gallon at 28c	.08 1/2
Lubrication	.01 1/2
Repairs to Truck (Overhauled 10,000 miles for \$400.00)	.04
Depreciation on Truck (Less Tires), 50,000 Miles for \$4,350.00	.08 1/2
Depreciation on Body & Equipment, 25,000 Miles for \$300.00	.01 1/2
Driver (37 miles per day at \$2.25)	.08

Total Operating Costs per Truck-Mile	\$0.35
Total Fixed Charges per Truck-Mile	\$0.10
Total Operating Costs per Truck-Mile	.35
Total Cost per Truck-Mile	\$0.45
COST PER TON-MILE BY 3-TON TRUCK	.15

4-MULE TEAM (2-TON LOAD). FIXED CHARGES PER YEAR:

Interest at 6% on \$700.00, First Cost of 4 Mules at \$175.00	\$42.00
Depreciation on 4 Mules, \$700.00 in 10 years	70.00
Interest at 6% on \$200.00, First Cost of Wagon, Harness, Etc.	12.00
12 Tons Hay at \$35.00	420.00
64 Bbls. Corn at \$7.00	448.00
Feeding (done by stock man), 260 days at 20c	52.00

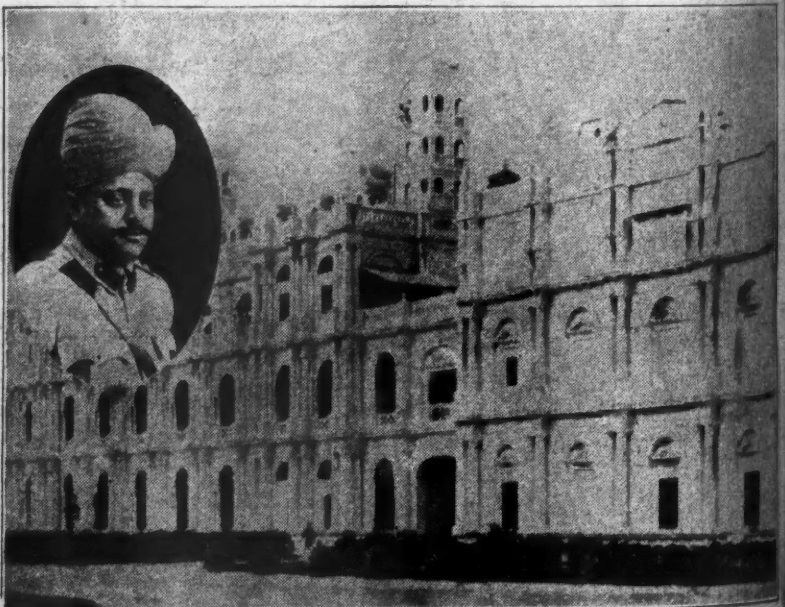
Total Fixed Charges per Team per Year	\$1,044.00
Fixed Charges per Team per Day (200 working days per year)	5.22

OPERATING COSTS PER DAY:

Depreciation on Wagon, Harness, Etc., \$200.00 in 1,000 days	.20
Shoeing, Repairs, Etc., \$3.60 per month of 20 working days	.18
Driver (exclusive of feeding) at \$2.00 per day	2.00

Total Operating Costs per Day	\$2.38
Total Fixed Charges per Team per Day	\$5.22
Total Operating Cost per Team per Day	2.38
Total Cost per Team per Day	\$7.60
Cost per Team-Mile (15 miles per day)	.51
COST PER TON-MILE BY 4-MULE TEAM	.25 1/4

India Prince Buys Tractors



Palace Home of the Maharaja of Gwalior, Richest Man in India. The Prince is Shown Above

WE BELIEVE it was Kipling who said "East is East and West is West and Ne'er the Twain Shall Meet." Without any disrespect to Mr. Kipling, we desire to state that although East is East and West is West, the two do meet.

In the far East in India, there is a state or section of the country called Gwalior. The Prince or ruling power of this state is called the Maharajah of Gwalior. This is the East. In Peoria is the Avery Company. This is the West. The Avery tractor is the place where the two meet.

The Maharajah is one of the wealthiest men in India and owns great estates which he is beginning to farm in an up-to-date and scientific manner. Thinking rightly that power farming was the answer to his

question for a practical up-to-date method of farming, the Maharajah purchased seven Avery tractors.

Long ago India was the land where farming was done by the native with animal power, but now this great country is awakening to the great possibilities of scientific farming, and this great fertile territory promises much in the matter of helping settle the world's economic problems. The picture in the oval is that of the Maharajah of Gwalior, while the other shows his great palace located in the city of Gwalior.

Don W. Griffin, formerly in the Agricultural Department of the Ohio State University is now in charge of the betterment of agricultural conditions in Gwalior, as Agricultural Engineer of that state.

A Maxwell Truck you buy this Month will make you a present of its Total Cost in One Year.



More miles per gallon
More miles on tires

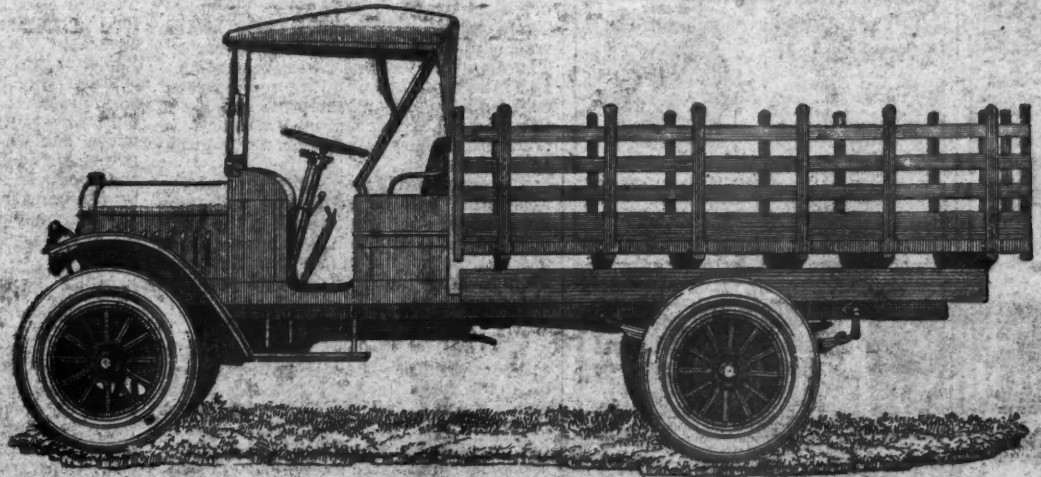
FIVE-thousand-dollar truck construction. Five-thousand-dollar truck guarantee. Worm Drive. 10-foot loading space. Electric lights and generator. 2400 pounds—we built it right to get it light—to save tires—to reduce gas consumption—to climb hills—to take bad roads—and to keep repair bills down.

For long hauls and short calls. Self-supporting. Amateur proof. Chassis \$1185 f. o. b. Detroit.

If you like, take your time with the payments and let the Maxwell buy itself on the run.

Pays its way from day to day.

MAXWELL MOTOR COMPANY, Inc.
DETROIT, MICHIGAN



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Stop Feeding Away Your Profits

There's only one way—*spray and spray right.*

Spray at the right time and spray with the right kind. You probably know the enemy's habits and when the most timely spraying or dusting can be done. If you're in doubt ask for Glidden spraying literature.

And spray with the right kind. That's just as important as spraying at the right time. Users of Glidden sprays know this from experience. They know how the Glidden kinds spread the poison evenly over all of the foliage and keep it there until it does effective execution.

They know, too, that the big factor in this result lies in the Glidden organization and the complete equipment in the big Glidden plants. Having used Glidden products over and over again they have had evidence of uniformity as well as quality.

The Glidden line includes: Glidden Dry Powdered Arsenate of Lead, Glidden Dry Powdered Arsenate of Calcium, Glidden Dry Powdered Bordeaux Mixture and Glidden Dry Powdered Bordo-Arsenate, Glidden Dry Lime Sulphur, Glidden Paris Green.

Everywhere on Everything

Glidden Products cover such a wide range of usefulness that "Everywhere on Everything" is now a true expression of Glidden service. On farm buildings, on the farm implements, in the farm home, everywhere on everything. Glidden Paints, Varnishes, Stains and Enamels are providing the necessary protection and where needed, attractive decorations as well. There are Glidden Dealers in every locality.

THE GLIDDEN COMPANY, Cleveland, Ohio

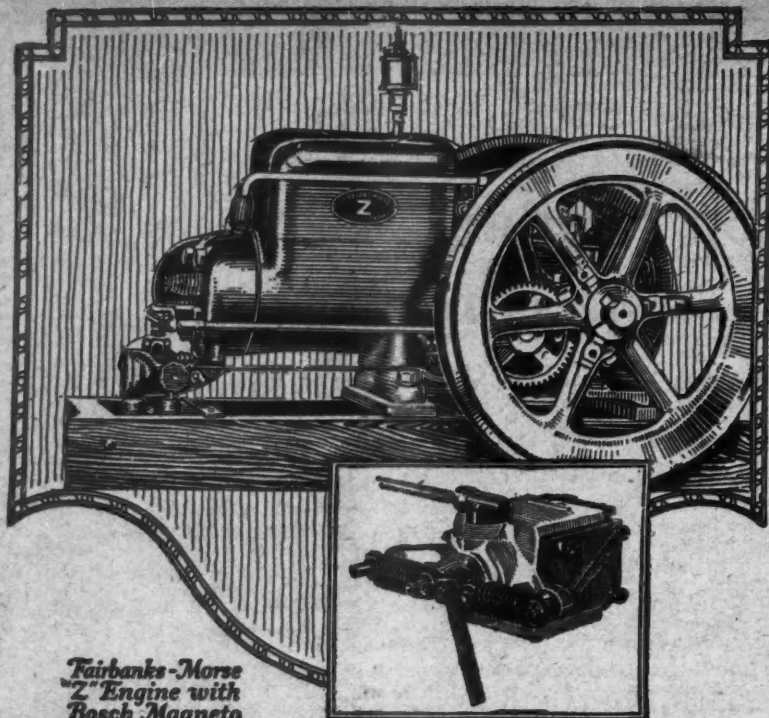
Factories: Cleveland Chicago San Francisco Reading Toronto

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Fairbanks-Morse
"Z" Engine with
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Greater Engine Value

OVER 250,000 farmers bought the "Z" engine. They know it is powerful, dependable, and practically fool-proof—truly a great engine. But now we announce the one addition which could possibly improve the "Z" performance—Bosch high tension, oscillating magneto ignition. So let the "Z" dealer near you show you in detail this greater engine value. Over 200 Bosch Service Stations combine with "Z" dealers to give every farmer buyer a remarkably complete engine service. Prices—1½ H. P. \$75.00—3 H. P. \$125.00—6 H. P. \$200.00—All F.O.B. Factory.

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MANUFACTURERS CHICAGO

American Fence

Full gauge wire, full weight, full length rolls. Superior quality galvanizing, proof against hardest weather conditions. Special Stock Sent Free. Dealers Everywhere. AMERICAN STEEL AND WIRE CO. CHICAGO NEW YORK

Apple Trees, Dwarf Pear Trees and Currant Bushes for sale by the 10, 100 or 1,000. Write for Prices. We have an usual supply of all kinds of nursery stock. Correspondence solicited. GREEN'S NURSERY CO., 105 Wall Street, Rochester, N. Y.

Save \$43

New Oliver Typewriters For \$57

No need now to be without a typewriter on the farm. A genuine \$100 Oliver, brand new, for only \$57. Our terms are only \$3 per month. Free trial—no money down. Typing is easy to learn. Our new book, "The Typewriter on the Farm," explains all its uses. Get this book now. A copy sent free upon request, together with beautiful catalog. Write today. Then, if you wish, you can ask for a free trial Oliver. OLIVER TYPEWRITER COMPANY, 3707 Oliver Typewriter Building, Chicago, Illinois (31-01)

The Handyman Gives You a Lift

A practical combination labor-saving tool for everyday use on the farm. Wire and fence stretcher, lifting jack, post puller, and many other tools in one. Fully guaranteed—10 days' free trial. Salesmen wanted. Big money. Write today. HARRAH MFG. CO. Dept. 33 Bloomfield, Ind.

SAVE THE TREES Spray for San Jose Scale, Aphids, White Fly, etc. with GOOD'S CAUSTIC FISH OIL SOAP No. 3. Contains nothing poisonous or injurious to plants or animals. Our book on Tree and Plant Diseases. Write for it today. JAMES GOOD, Original Maker, 2111-15 E. Sycamore Ave., PHILA.

NOW Special prices

Direct From Factory Save money at present prices. You can't beat our quality as proved by many thousand engines working in all sections of the country, on all kinds of jobs. OTTAWA Better Built ENGINES. Kerosene, Gasoline, Distillate, Gas. Sizes 2, 3, 4, 5, 6, 7, 8, 10, 12, 15 and 22 H.P. Stationary, Portable, and Sawmill styles. Use cheapest fuel. Easy to start; easy to operate. Durable. Reliable. 60-days trial. 10-year Guarantee. Book Free. Give low prices and make all engines easy to understand. OTTAWA MFG. CO. 175 King St., Ottawa, Ont.

Packing of Apples

By Floyd Lewis, Tennessee

The preparation of apples for shipment from the producing sections of the Pacific states, has had a wonderful development during the past ten years. Scientific facts and apparatus are now known and used, to



Inspecting apples before shipment. All apples in the various districts of the northwest are rigidly inspected by experts, and if they are found to be diseased or not up to grade, the inspector at once rejects them. They must either be re-packed or sold as culls.

produce profit for the growers and shippers, and a perfect quality of apples for the consumers.

Ten years ago the boxed apple industry of the United States was in its infancy. Apples were packed by hand on the farm; no sizing machines were then on the market. Also, it was thought that the act of hauling apples, loose in orchard boxes, to central packing plants, would so bruise and injure the fruit as to make it unfit for market.

Thousands upon thousands of boxes of cull apples have been destroyed by the growers in these states, during the past ten years, while the world has been demanding evaporated apples, cider, vinegar, jam and apple butter. A few years ago the writer purchased apple cider vinegar in Wenatchee, Wash., which had been bottled in the state of New York; yet at this time one could find hundreds of tons of apples that would make excellent cider, piled in immense piles where they were either burnt or allowed to rot. At the present time, these apples are made into the various products mentioned above, and placed on the market by manufacturers whose plants are located in the various apple districts. The sale of cull apples goes a long way towards paying the operating expenses of the growers.

Today, in practically all the large pro-

American Fruit Grower

ducing sections of Washington, Oregon, Idaho and California, apples are hauled to central packing plants and there graded by machinery, and packed at a much lower cost than formerly. The fruit does not bruise to any great extent, and this system enables the shippers to always sell fruit that is freshly packed. This advantage to both seller and buyer is very important. Formerly the fruit was packed on the farm, and often held for a month or more; then hauled to the warehouse of the shipping company, and probably held there for several months before being sold. As apples shrink very rapidly, and lose in weight, the fruit was often short in weight and loose in the boxes when received by the buyer—although tightly packed at first. Today the large central packing houses keep the fruit in orchard boxes, until it is sold; then it is packed and shipped at once. If there are any bruised or rotten apples in the boxes, it is easy to detect them and pack them with the culls; formerly many bruised and skin-broken apples passed by the house



Rear view of an apple grading machine. The fruit is carefully sorted by women, then sized by the machine and packed by expert packers. 1,000 boxes per 10-hour day is the capacity of this machine, and there are four of them in this room—a daily output of 4,000 boxes.

eyes of the inspector, later developing in the boxes after packed, and causing heavy loss to both seller and buyer.

Another advantage of the central packing system is this: Orders are quite often received for a mixed car of different varieties; if the fruit is stored in orchard boxes in the packing plant, it is easy to order the number of boxes of each variety required to fill the order, packed and loaded at once.

The increased efficiency of the central packing plants, and the sale of cull apples for by-products, has added a large margin of profit to the growers that was formerly a total loss.



Shipping room of the warehouse of the Cashmere Fruit Growers' Union, Cashmere, Wash. This room will hold thirty thousand boxes of apples, labeled and sorted as to variety and grade and ready to be loaded at any time. The main building holds over one hundred thousand boxes of loose apples in storage and ready for packing in the packing room. This is purely a co-operative growers' organization, which has stood the test of years of successful marketing. All of the boxes shown were labeled by a 17-year-old girl at 35¢ per hundred; she would earn \$1 an hour and average \$7 per eight-hour day.



Protection—Legal Advice—Adjustments



WHAT YOU NEED IS A MEMBERSHIP
in the

American Fruit Grower Protective League

Details of Service Rendered By the League

A leading feature of the AMERICAN FRUIT GROWER PROTECTIVE LEAGUE'S work will be to drive out crooks and sharks who prey upon fruit growers and farmers through various schemes and deception and fraud. Members who are thus victimized are urged to notify the League and to make use of the service of the League, with a view both to a recovery, when possible, and the frustration of further attempts along that particular line.

Another feature of the work of the AMERICAN FRUIT GROWER PROTECTIVE LEAGUE, that should prove valuable to our subscribers, will be the prosecution of claims of members of the League, arising out of shipments of fruit, produce, etc. Claims of all sorts resulting from delayed or lost shipments, stealing of fruit, freezing, negligence in billing and handling, will be taken care of through the service of this branch of the League.

A legal department will be conducted through the columns of the AMERICAN FRUIT GROWER. Legal inquiries only will receive the attention of this department, and all such inquiries will receive prompt consideration. It is not intended that this department shall supplant the local attorney. If the matter presented is of such a nature as to call for the services of a local lawyer, the member will be so advised. Only such legal questions as are of general interest to the readers of the AMERICAN FRUIT GROWER, will be published in these columns. Personal matters, not of public interest, will be handled by correspondence direct with the member. All inquiries must be signed by the inquirer, otherwise no attention will be given to the inquiry.

Why All Fruit Growers Should Join the League

Every fruit grower can qualify for membership in the AMERICAN FRUIT GROWER PROTECTIVE LEAGUE and ought to join this League. He should avail himself of the service which the League affords.

There is hardly a fruit grower or farmer anywhere who, during the coming year, will not find himself in need of service along one or more of the lines referred to. He may need assistance in collecting a claim against a common carrier or commission man. Perhaps he will need some advice concerning the law involved in the various items with which a fruit grower and farmer is concerned and of his rights therein. He can write to the League and procure the required service. The operation of swindlers may affect other members, and the League will be bulwark against such fraudulent schemes and deceptions and serve to curb their activities.

A vital reason for the affiliation of fruit growers and farmers with the League is that in union there is strength. If we will stand stanchly together it will profit us all. The stronger this League becomes the more protection will be afforded to every member and the more secure in their rights will be the fruit growers and farmers of America. You will help not only your own interest by joining the League, but the interest of every other fruit grower and farmer also.

What You Get With Your Membership

2-Year Membership Certificate in AMERICAN FRUIT GROWER PROTECTIVE LEAGUE.

24 Monthly Issues of the AMERICAN FRUIT GROWER.

1 Handsome League Membership Button.

1 Enamelled League Gate Sign.

1 League Rubber Stamp and Pad.

Send In Your Subscription and Become a Member

It is easy to become a member of the League. All that is necessary is for you to send \$1.50, for which you will receive 24 monthly issues of the AMERICAN FRUIT GROWER; a 2-year Membership in the AMERICAN FRUIT GROWER PROTECTIVE LEAGUE; a League Membership Button; a League Gate Sign; a League Rubber Stamp and Pad.

How Present Subscribers Can Become Members

Readers whose subscriptions to the AMERICAN FRUIT GROWER are now paid in advance can become members of the League by sending 50c. In return they will be entitled to full membership privileges, and will be sent a Membership Certificate good for the remaining months of their paid-in-advance subscription, a League Membership Button, a League Gate Sign, and a League Rubber Stamp and Pad.



Membership Assures
PROTECTION—PROFIT—SERVICE

MAIL COUPON TODAY



Blank for New Subscribers

AMERICAN FRUIT GROWER
CHICAGO

Enclosed find \$1.50, in payment for a 2-year subscription to the AMERICAN FRUIT GROWER, which entitles me to a 2-year Membership Certificate and full privileges of the AMERICAN FRUIT GROWER PROTECTIVE LEAGUE, a League Membership Button, a League Gate Sign, and a League Rubber Stamp and Pad.

Signed.....

Address.....

Postoffice..... State.....

Blank for Paid-in-Advance Subscribers

AMERICAN FRUIT GROWER
CHICAGO

Enclosed find 50c, which entitles me to a Membership Certificate in the AMERICAN FRUIT GROWER PROTECTIVE LEAGUE, and full privileges for the time my subscription to the AMERICAN FRUIT GROWER is now paid in advance. You are also to send me a League Membership Button, a League Gate Sign, and a League Rubber Stamp and Pad.

Signed.....

Address.....

Postoffice..... State.....

Poultry for Profit



Culling the Flock

By Campbell L. Cory, Editor of "Poultry for Profit" Department

Subscribers are urged to write us in regard to their poultry problems. They will be answered by an expert. Address, Campbell L. Cory, American Fruit Grower, Chicago, Ill.

THE MIDDLE of the moulting period is the ideal time to give the flock a complete culling. This varies with different flocks but most birds are in full moult the last of September and during October. The characteristics that distinguish poor layers from good ones, 200 egg hens or better, are most evident between September 1 and November 1. During October the majority of poultry breeders are preparing their birds for winter quarters and some reduction in number is generally essential. The hens have finished the heavy season of production by October and the poorer ones have

The first essential thing is to be careful that no eggs get broken in the nests. See that the nests are properly supplied with straw or other nesting material. It is better too to have the nests darkened, in which case if an egg does accidentally get broken the hens will not be likely to discover it. Supply the hens, too, with plenty of shelling making food in the form of oyster shells and ground bone.

When it is discovered that a particular bird has formed the egg eating habit, this bird should be at once removed, in order to prevent the spread of this vice. It's an absolute certainty when one hen, the egg eater for instance, is gobbling up the contents of a new laid egg some of the other hens in the close proximity are going to be attracted to the same nest and get in on it



A Small Combination Fruit and Poultry Plant with a Fine Flock of Black and White Orpingtons

stopped laying. These low producers will not lay again during the remaining fall months and should be weeded out and sold. Any breeder doing this systematically will not decrease his egg production.

Anyone, who studies his birds closely, can easily recognize the differences in his hens and tell almost at a glance the high producers from the poor layers, although the general system of culling is based on the fact that nature stamps the hen with certain visible characteristics that indicate the habits and traits of each individual. In the human family the hard working farm wife or business woman is easily distinguished from the social butterfly, so in the hen family these characteristics show whether a hen is a layer or a heavy layer.

With feed, too, as high as it is now, there isn't a breeder anywhere who wants to keep a bunch of hens around his place that are not paying for their board. In one county in Missouri, 70 hens showing the earmarks of loafers, were culled out of a flock of 166 Rhode Island Reds. For the four days previous to the culling process the owner had received an average of 34 eggs a day from these 166 hens. For the first six days after the loafers had been sold he received an average of 32 eggs each day from the 96 hens left.

So, go through the flock this month and cull out the slackers.

Why Hens Eat Eggs

Egg eating usually begins through accident by eggs being broken or frozen and generally when it gets started in a flock egg eating becomes a serious vice, inasmuch as chickens are very fond of eggs when they have learned to eat them, and the habit quickly spreads from fowl to fowl.

least part of the feast. Once formed the habit is hard to eradicate, and the safest remedy is the death penalty.

Skimmed Milk Good for Poultry

Milk, when properly fed, makes an excellent feed for poultry. In feeding sour milk or buttermilk, however, the breeder must exercise care not to give the birds too much or bowel trouble will likely develop. Skimmed milk is an economic feed. The most valuable food constituents—the nitrogenous substances—are left in skimmed milk. Not only does skimmed milk contain most of this nutritive material but it contains it in a form that, as a rule, is easily digested. Skimmed milk may often be substituted advantageously for meat scraps or fish meal. It can also be used in mixing soft feed, especially for the growing youngsters, or may be given the birds to drink, but in addition of course to water.

Pointers for Beginners

Fruit growing and poultry raising go hand in hand, and many fruit growers have found the keeping of a flock of pure-bred chickens a very profitable side line, and especially so now with food prices the way they are. In past travels the writer has had the pleasure of visiting countless combined fruit and poultry plants that are successful and money makers for the owners. In some cases the owner started with chickens but later planted fruit trees in his poultry runs and also set out an orchard, while at other farms the owner was primarily a fruit grower but found that chickens, especially young stock, thrived and grew in the shade and free range of the orchards.

The safest way for those about to make their first attempt at poultry raising is to start in a small way with a few birds, and learn the business thoroughly before making any large investments. Mistakes will be made, of course, and many difficult problems will be presented for solution before success in any large measure will be attained. As soon as the poultry is found to be a paying investment more capital can be put into the plant. Another important pointer is to start with pure-bred stock. Pure-bred birds do not mean fancy feathers and exhibition stock, but birds bred from pure blood lines.

The question is often asked as to the best time of year for one to begin. This is really immaterial, as either spring or fall are good. In the spring one can buy pure-bred day-old chicks at very reasonable prices, while in the summer or early fall full grown surplus breeding stock can be purchased for less money than at any other season.

SAVING THE CHICKENS—PREVENTING HUDDLING AND SMOTHERING

By W. H. Jenkins, New York

All the poultrymen I know who raise chickens in large numbers, lose more or less by smothering. My own experience has been when I have placed about 500 chicks under my large coal-burning colony house I can make them live and grow well until they are three or four weeks old. By this time their bodies get so large that, when packed together, they soon smother. It is difficult to keep a coal-burning brooder at an even temperature all night. If it is too cold the chicks will crowd close to the stove. If too hot they will crowd back against the side of the house and as close together as possible, with the result that several will smother and die. This may continue until the chicks are fully feathered out, and they need no outside heat.

The largest loss is likely to occur when the chicks are from four to six weeks old. Then they are so large and generate so much heat they soon die if packed long together. I have seen a bushel of half grown chicks smothered in one night, and they are usually the pullets, as the larger roosters are more able to take care of themselves. Some poultrymen who raise chicks in large flocks, expect to find some dead every morning. Reducing the number under the brooder even down to 100 will not entirely prevent the loss, as this number can huddle and commit suicide if conditions are right.

Seeking to Prevent Loss

After having serious losses for several years, I became so desperate over the loss of fine pullets I was raising for winter laying, I began to study means of prevention. I try to have my first hatch in the brooder house about April first, in about three weeks I can begin to tell which are roosters, and as fast as I am sure, I separate them from the pullets, and put them in a heated colony house, for the weather is yet too cold for the roosters to live and grow without artificial heat. This is about the age when the chicks begin to huddle, and it helps some to reduce the size of the flock.

I determined if possible to save my pullets after I had got them separated, and began to study conditions under which huddling is possible. It is evident chicks can not huddle and pack close together in large numbers unless there are sides, or something rigid for them to crowd against. When they began to push each other back from the heat, and come up against something that stopped them, they began to pile up. The solution seemed to be to take away the stationary sides. One way which occurred to me to do this is to place on the side of the house where the chicks go to sleep (and it is their nature to go the same place every night) a movable floor without sides. This is made of slats one inch wide, placed about one inch apart. This platform or floor for my colony houses, which are twelve feet long, and in which I may have three or four hundred pullets, is made about three feet wide, and ten feet long. It will be seen that when the chicks are on this platform and it is raised a little above the floor, and away from the sides of the house, there is a layer of chicks about three feet wide, with no sides around them. If they begin to crowd each other, they simply tumble off on the floor. The number on the platform is reduced, and the few on the floor cannot injure themselves by huddling.

The slatted platform is off the floor and the manure cannot accumulate on it. It is

easily kept clean, and therefore is more sanitary. I would not advise it for the baby chicks that need to be kept warm, but only when they are partly feathered. This is the best way I know to teach the chicks to roost early, they feel the slats under them, and naturally learn to sit on them and put their toes around them to hold them on. As the chicks grow larger, and want more room, and show some signs of roosting, remove part of the slats and you have ready made perches for the chicks just where they are, and when they have learned to roost on the perches, all danger from huddling is past.

When Chicks Huddle

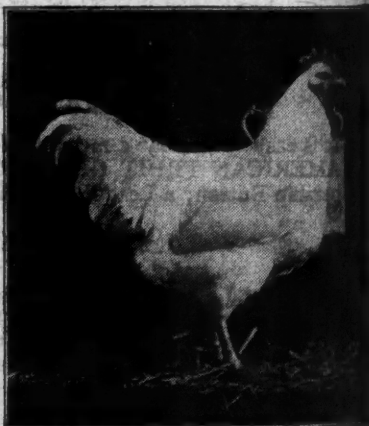
All the losses from huddling are not in the brooder house at night, but I have learned that chicks will huddle under some conditions in the day time out in the yards or in the house.

If chicks get wet and cold, and they are not immediately got in a warm house,



Colony House and Young Stock. Walnut Grove Farm, Chilhowee, Missouri

the only thing they know to do to get warm is to huddle. When a sudden rain gets them wet while out in the yard, I have seen them huddle in a corner of the fence until several smothered, also in the brooder house when it was not very warm. If chicks are kept dry, and busy scratching for grain, they may be left in quite a cold place without danger of huddling. I do not turn my chicks out during rainy weather, but either on covered outside scratching floors, or in the run made under the building by setting it up a few feet from the ground on posts. When chicks are large enough to be



A Prize Winning White Rock Cockerel. Feeny Feathers Please the Eye and Satisfy a Hobby, but Heavy Laying Pure Bred Utility Stock are Money Makers.

outside of the brooder house during the day, keep them dry and busy and you will prevent huddling.

THE HUMBLE BEE

Aught unsavory or unclean
Hath my insect never seen;
But violets and bilberry bells,
Maple-sap and daffodils,
Grass with green flag half-mast high,
Succory to match the sky,
Columbine with horn of honey,
Scented fern, and agrimony,
Clover, catchfly, adder's-tongue,
And brier-roses, dwell among;
All beside was unknown waste,
All was picture as he passed.
—Emerson.

Bartlett pears from Lodi, Cal., to Pittsburg, brought the unusual price of \$7.00 per box. \$4.00 per box was the highest figure paid last year for pears from this locality.

The California Packing Corporation announce prices on canned fruit ranging from 25% to 40% higher than the opening prices last year.

160 Hens - 1500 Eggs

AS AMERICA'S foremost poultry expert I predict that eggs are going to retail for a dollar a dozen this winter. Right now the retail price is from 50c to 75c per dozen in some of the large cities. At a dollar a dozen poultry raisers are going to make tremendous egg profits. You, too, can make sure of a big egg yield by feeding your hens a few cents' worth of "More Eggs" tonic. This product has been tried, tested and proven. It is acknowledged the best and most successful egg producer on the market today. Every day that you don't use it means that you are losing money. Don't delay. Start with a few cents' worth of "More Eggs" tonic now.

Got 117 Eggs Instead of 3

That's the experience of one poultry raiser who wrote me. Mrs. Myrtle Lee of Boston, Ky., writes: "More Eggs" Tonic is a great Godsend. I was only getting 19 eggs a day and am now getting 80 a day." 400,000 chicken raisers have used this wonderful tonic. Here are a few letters of thousands received:

"100 Hens—125 Dozen Eggs"

E. J. Reefer: I have fed two boxes of More Eggs Tonic to my hens and I think my hens have broken the record for eggs. I have 100 White Leghorns and from March 25 to April 15 I sold 125 dozen eggs. Waverly, Mo. MRS. H. M. PATTON.

"15 Hens—310 Eggs"

E. J. Reefer: I used your More Egg Tonic and from December 1 to February 1, from 15 hens, I got 310 eggs. Your remedies are just what you claim them to be. Turner Falls, Mass. MRS. U. R. STOUTON.

"More Than Doubled In Eggs"

E. J. Reefer: I am very much pleased with your "More Eggs" Tonic. My hens have more than doubled up in their eggs. Mendon, Ill. L. D. NICHOLS.

"48 Dozen in One Week"

Dear Mr. Reefer: I can't express how much I have been benefited by answering your ads. I've got more eggs than I ever did. I've sold 48 1/2 dozen eggs last week, set 4 dozen, ate some and had 1 1/4 dozen left. Woodbury, Tenn. From your friend, MRS. LENA McBRON.

"Selling Eggs Now"

E. J. Reefer: I was not getting an egg when I began the use of the "More Eggs" Tonic. Now I am selling eggs. Hobo, Oregon. MRS. J. V. BRINK.

"Gets Winter Eggs"

E. J. Reefer: It is the first time I got so many eggs in winter. When I began using "More Eggs" I was only getting from 1 to 3 eggs per day and now I am getting 13 to 15 eggs per day. Wilburton, Kan. MRS. JULIA GOODEN.

18 Hens—12 Eggs a Day

E. J. Reefer: Six weeks ago I began giving "More Eggs" Tonic and I was not getting an egg from 18 hens, and now I am getting 12 to 13 every day. You can quote me as saying that it is the best chicken tonic in the world. E. L. REYNOLDS.

"37 Eggs a Day"

E. J. Reefer: I started using "More Eggs" Tonic in my hen house. When I started using it they did not lay at all, now I get 37 eggs a day. Elwood, Indiana. EDGAR E. J. LININGER.

"Increases from 8 to 36 Eggs a Day"

E. J. Reefer: I am well pleased with your More Eggs Tonic. I was only getting 8 or 9 eggs, now I am getting 36 a day. Your truly, W. M. SCHUBERT.

"Doubles Egg Production"

E. J. Reefer: I have been using More Eggs Tonic 3 or 4 weeks and must say it is fine. My egg production has been doubled. Paradise, Texas. J. C. KOENIGER.

"Increases from 2 to 45 Eggs a Day"

E. J. Reefer: Since I began the use of your More Eggs Tonic 3 weeks ago I am getting 45 eggs a day, and before I was only getting 2 or 3 a day. Derby, Iowa. DORA PHILLIPS.

More Eggs Makes Layers Out of Loafers!

This is a concentrated tonic, not a food. It consists of every element that goes toward the making of more eggs. A perfect regulator, aids digestion, stimulates egg production and builds firm bones and strong muscles. The foremost authorities in America and poultry raisers from every state endorse Reefer's "More Eggs" tonic.

Results Guaranteed!

Here is the facsimile of the guarantee of a million dollar bank that "More Eggs" will produce results. The million dollar bank guarantees to refund your money if you are not satisfied. You run no risk. So don't delay. Every day you wait you are losing money.



A Million Dollar Bank Guarantee

Absolute Satisfaction or Money Back

The National Reserve Bank
of Kansas City
Capital and Surplus \$1,100,000

TO WHOM PRESENTED:

Mr. E. J. Reefer has deposited in this Bank Ten Thousand (\$10,000.00) Dollars, with instructions that out of this fund we are to return to any of Mr. Reefer's customers the total amount of their purchase from him, provided Mr. Reefer fails to do as he agrees.

You, therefore, take no risk whatever in purchasing from Mr. Reefer, as this bank will refund the total amount of your remittance to Mr. Reefer if he fails to do as he agrees. Very truly yours,
W. H. I.
President.

Order Today

Every day counts! Starts your hens making money for you right away. Send the coupon today for a full-size package of "More Eggs" Tonic. You run absolutely no risk. A million dollar bank will refund instantly if you are not entirely satisfied. Just put a dollar bill in with the coupon and mail today. Profit by the experience of a man who has himself made a fortune out of the poultry business, and is helping others to do the same. Send for this guaranteed egg producer and profit maker TODAY.

E. J. Reefer 3657 Reefer Bldg., Kansas City, Mo.

E. J. REEFER, Poultry Expert

3657 Reefer Bldg., Kansas City, Mo.

Send me one full-size package of "More Eggs." Send this with an absolute guarantee that you will refund my money if this tonic is not satisfactory in every way.

I enclose \$1.00 (a dollar bill, P. O. money order, or your private check—just as you please).

Name _____

Address _____

Mid-West Exposition

The Mid-West Horticultural Exposition to be held at Des Moines, Iowa, November 10-15, is rapidly rounding into shape. The preliminary premium list, which may be had by writing Secretary Wesley Greene, Des Moines, Iowa, carries premiums on apples in various classes amounting to \$2,000; \$1,000 on vegetables; \$1,000 on flowers, and \$1,000 on Boys' and Girls' Club demonstrations and exhibits. The exposition will be housed in the Des Moines Coliseum and those in charge expect keen competition and a splendid attendance.

Manufacturers and distributors of orchard machinery, spraying material, etc., have already shown much interest in the forthcoming exposition. Those who have not already arranged for exhibition space should write F. J. Wright, care of Successful Farming, Des Moines, Iowa, Chairman of the Concession Committee. Commercial interests should make early reservations for space in order to be sure of getting just what they want.

The annual flower show of Iowa will help fill the Coliseum with a splendid flower exhibit. The time of year is favorable to a splendid showing of flowers, plants, etc.

The display of vegetables will include all classes and with the favorable season there will be variety and quality.

In the junior department there will be five exhibits of the Boys' and Girls' Club work and demonstrations by teams. Eleven teams of boys and girls will feature canning; preserving; bread baking; syrup making; potato club demonstrations; cooking and serving dried fruits and garden products. There will be eleven projects with a team to demonstrate each one each day.

An apple pruning and spraying club, organized at Woodbine, Iowa, will show what has been accomplished along this line this year. These boys will show approved methods of cultivating, pruning and spraying apple orchards, and by comparison, will show what happens to fruit when it is not given proper attention. This team will be one hand to demonstrate their work, and it is expected that fruit clubs will be organized another year more fully in Iowa and other states.

An interesting program, demonstrations, and exhibits will in every way, seek to feature commercial orchard and garden products and the exposition promises to be of vital interest not only to producers but to consumers as well.

More explicitly, the purpose of the exposition is to show the production and use of temperate zone fruits, nuts, vegetables, flowers, with demonstrations on the utilization and conservation of fruit and vegetable foods and forest products.

ORANGE RUST OF BERRY PLANTS

Raspberry and blackberry plants infected with orange rust are doomed, for no cure has been found. They should be dug up and burned, for the disease is caused by spores widely carried by the wind. The first stages are detected by the dwarfed foliage which soon becomes orange-colored underneath. If the plants are dug or pulled up before there is any spore dust developed, the need for burning is not urgent.

DAMAGED BY BROWN TAIL MOTH

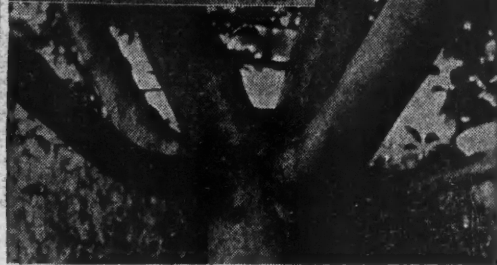
The brown tail moth has extended its depredations to the cranberry bogs of Cape Cod, and growers state that great damage has been done this season by the pest. Their method is to cut off the tender bloom shoots, and death of the plant results. It is possible to rid the bogs of moths by flooding, but much damage is done to the bloom by this means.

Grasshoppers have been such a scourge in portions of California this summer that it is estimated more than 1,000,000 to the acre infested some areas. From almond-growing sections comes the report that immense quantities of cheesecloth have been used to cover and protect the trees.

That wine grapes will be used for raisins is indicated by the fact that the independent raisin men are offering growers of these grapes \$40.00 per ton, which is a higher price than was ever paid in the palmiest days of the wineries.



Compare the tree in this picture with the tree in the lower picture. In each, both fork and entire tree are shown. The tree in this picture shows health, vigor, growth, and productivity — freedom from Scale and Blight — as a result of spraying with "SCALECIDE."



While this tree was actually saved by "SCALECIDE", it had been sprayed with "SCALECIDE" several years sooner. It would have been as big and profitable as the tree shown above.

Scalecide Kills Scale

—even when you are spraying primarily for Pear Psylla, Blight Canker, Collar and Root Rot

"SCALECIDE", as its name implies, eradicates Scale—for 15 years it has been the recognized spray for this pest. Fortunately, no extra spraying is necessary. "SCALECIDE" is "the complete dormant spray"! At one spraying you fight Scale, Pear Psylla, Fire Blight, Canker, Collar and Root Rot—all at the same time with one operation.

"SCALECIDE" is a tree invigorator—it "makes a tree outgrow its troubles". It is perfectly soluble in water (if not don't use it) and contains both fungicidal and germicidal properties. "SCALECIDE" penetrates! It reaches and destroys the disease without injuring the delicate plant tissues in the slightest. Moreover, "SCALECIDE" is easy and pleasant to use, and costs less to apply.

"SCALECIDE" has literally saved many orchards—and will improve any orchard. If yours is in good condition it will make it better; if in bad condition it will make it good. The rest is up to you! A fair trial will never be regretted.

Send today for copy of our guarantee. Address Dept. 11

B. G. PRATT COMPANY

Manufacturing Chemists

50 Church Street

New York City

SCALECIDE

THE COMPLETE DORMANT SPRAY

SCALECIDE

"Makes a Tree Outgrow Its Troubles"

THE BEST LINIMENT

OR PAIN KILLER FOR THE HUMAN BODY

Gombault's
Caustic Balsam
IT HAS NO EQUAL

For — It is penetrating, soothing and healing, and for all Old Sores, Bruises, or Wounds, Felons, Bolls, Corns and Bunions. CAUSTIC BALSAM has no equal as a Liniment.

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

A Perfectly Safe and Reliable Remedy for
Sore Throat
Chest Cold
Backache
Neuralgia
Sprains
Lumbago
Sore Lungs
Rheumatism
and
all Stiff Joints

REMOVES THE SORENESS—STRENGTHENS MUSCLES
Coruhill, Tex.—"One bottle Caustic Balsam did my rheumatism more good than \$100.00 paid in doctor's bills."
OTTO A. BEYER.
Price \$1.75 per bottle. Sold by druggists, or sent by express prepaid. Write for Booklet B.
The LAWRENCE-WILLIAMS COMPANY, Cleveland, O.



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Australian Fruit Notes

Laudable Effort in Tasmania

Asserting that "the day of individualism is past," and that "fruit growers are in competition with the world," the fruit growers of Tasmania have formed the Northern Tasmanian Protective Association, which is not a trading association but one "for the purpose of assisting, protecting, and developing the general interests of the fruit industry and the individual growers in Northern Tasmania."

According to "The Fruit World," Melbourne, Australia, the activities of this association will cover a very wide field taking up many matters vital to the fruit grower, presenting his case to the government, and aiding him in securing favorable railway and water freight, cold storages, and other problems affecting the distribution and marketing of fruit. Best cultural, packing and advertising methods will also be the care of this association, which looks to a future when it shall join with the Australian States for the development and protection of fruit growers.

Where We Lead Australia

"The Fruit World" comments with regret upon the fact that while "Americans are coming, and have been coming to Australia for years, investigating our parasitic, beneficial insects, taking them back home and actually reaping rich results from their introduction, we calmly wait and see America taking bountiful benefits from our beneficial insects, to teaching the lesson we should have learned long ago." A plea is made that the small sum necessary for building an insectarium and breeding and studying insects, be expended in this important matter.

Rousing Interest in Packing

At the January meeting of the Victorian Fruit Growers' Central Association, the president, J. W. Bailey had a number of Canadian cases made in order to test them in comparison with the generally used dump case during the coming apple season. A strong appeal was made for the adoption of the Canadian case to supercede the dump case. "The Fruit World" is illustrated with clear photographs of the properly packed Canadian case.

Wants South American Trade

Tasmania is earnestly seeking to regain the south American market. The Central Fruit Committee recommends the appointment of a representative in South America to open up the market for Tasmanian fruit. It is thought that a standardized pack there will be no difficulty in re-opening the market.

South African Fruit Notes

Not All Serene in South Africa

Labor shortage is no worse in the United States than elsewhere; indeed rather better when we read what one plantation has had to suffer in this respect. Says The South African Fruit Grower: "It is a singular characteristic of the pine plant (pineapple) that it attracts apparently a larger supply of moisture than it actually requires. The soil is always damp around the plant, and, as can be imagined, here the weeds thrive prolifically. Nothing affects the bearing of the plant sooner than weeds."

Langholm Estate has been a keen sufferer through shortage of labor. It was no uncommon thing for them to employ, largely in weeding, 300 and 400 hands, recently the utmost they could procure was 40. The pine production over many allotments is going to suffer for one or two seasons.

The company employ day labor, pay high wages, treat their men considerably, yet the independent native comes or absents himself just as the mood suits him. If his own patch of mealies at home wants attention—he remains at home—under the plea of working his own lands, but more often just to superintend his wives, who do it.

Eradicating Citrus Canker

The citrus growers of South Africa are concerned for the fate of their 5,000,000 trees if the authorities fail to grant the comparatively small sum needed to insure the eradication of citrus canker. Results, so far, have been very successful and it is quite certain the Union can be rid of canker if the work at present nearing completion is provided for and carried on.

Electricity in the Orchard Home

by E. N. Cable



Electricity Makes Farms Sell

Our readers are invited to write us about matters pertaining to electric service as it relates to the country home. Let us have your questions on any phase of this subject. Address E. N. Cable, American Fruit Grower, Chicago.

I ENTERED the office of my friend, a gray haired business man in a middle-western town, just as a young man passed out.

My friend motioned me to a chair and stood smiling after his departing visitor until a downward-shooting elevator bore him out of sight. Then he turned back and dropped into a chair with a little sigh.

"He's sold the farm he had bought of me and he has just settled up. If you've got any slow-moving farm property you want to sell," he went on, "just get electric lights for it and it'll sell like a hot cake."

other man mentioned, he put in electricity, for light and power, employing also, a small direct-connected electric plant. Within a year he had sold the place for two hundred fifty dollars per acre, a clean gain of several thousand dollars on the deal.

It is obvious that electricity in the farm home adds tremendously to the value of the property, and, while this is not meant as an unqualified recommendation to everyone with a farm for sale to first provide it with electricity, it might not be such bad advice after all.

The point is that electricity in the home suggests comfort, service and the quality of living that appeals to most of us whether we always recognize it or not. It would seem that the farm owner would be justified in equipping his farm home with



Electric Lights and Electric Fans Make a Porch Comfortable on Hot Summer Days and Evenings

"Eighteen months ago I sold that farm to this young man for eleven thousand dollars. I sold him the stock and implements that went with it for one thousand dollars, or twelve thousand dollars total."

"Well, he went to work, fixing up a little here and there but the most noticeable improvement he made was to put in a lighting plant, a little electric concern that lighted up his house and barn with electricity, ran a lot of the household machinery with motors and pumped the water. He had a good job of wiring and nice fixtures and with these and the new bathroom and a few similar features his home looked fit to grace any moderate, modern home street in any city in the land."

Eight Thousand Dollars Profit

"To make a short story shorter, when he priced the place the other day at sixteen thousand to a man looking for a farm, the man paid it, and four thousand for his stock and implements which had grown to that amount in a year and a half, or twenty thousand dollars altogether."

"I asked the young man how he was able to sell at such an advance. He said, 'The chief thing was that I had electricity in the house and barn, the lights and so on. He could have bought other farms around here, just as good as mine in most every way. But mine had electricity and he couldn't withstand that!'"

Electricity Makes Farms Sell

Now this incident happened in Southern Ohio, but as my friend finished I was reminded of a similar occurrence of some months ago, this time out in Central Iowa. Here a man had a 100-acre farm which he was holding at one hundred and eighty dollars per acre. There were no takers. Deciding to stay on the farm he made a few minor improvements and, like the

electricity and its kindred features of modern comfort and labor saving, against the possibility of an advantageous sale.

Home Is More Desirable

Then, if, when the improvements are completed and the farm home lighted up with electricity, then if the farmer and his family shall decide that they won't sell, but will just live on there and enjoy it themselves, so much the better. They'll be happier there in a modern, electrically equipped farm home than they will anywhere else. And it is better to find that out before the old home is sold than after. It costs money to gratify the taste for life on the farm nowadays. The writer knows personally of instances where from \$2,000 to \$8,000 were paid by previous owners to recover farms once sold with the impression that the owners wanted nothing in the world so much as to get away and forget the old home and its surroundings.

There might have been just cause for such impressions once upon a time. But now, when it is so easy to have the modern conveniences, the little refinements of life, there is getting to be less excuse for being dissatisfied with country life than ever before. So fix up the farm home, sure! Have electric lights, electric motors, running water, heating plants, all the features that you are apt to envy the folks in town. But don't sell the farm that you have so equipped unless you are very, very sure it is the thing you ought to do.

Something like this had been running through my friend's mind, I guess, for he remarked just then, "Well, now that he's got his money, I wonder what he'll do. Probably look around for another farm and find all the desirable ones higher priced than the one he sold."

And I agreed that that was what he probably would do.

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San Jose Scale
Red Orange Scale
Cottony Cushion Scale
Pear Psylla
Clusters of Aphis Eggs
Rust Mite of Citrus Fruits
Hang Over Fungus Spores of Brown
Rot of Peach and other Stone
Fruits
Peach Leaf Curl
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You Can and Will Control the Above
Named Insects and Destroy the Fungus
Spores by the Judicious Use of

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Runs cream separators, washing machines, pumps, etc.

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Capital required—Your dollar, your heart, your hand, as one of the Million Volunteers from November second to eleventh (Armistice Day) inclusive.

Twenty Million members are to be enrolled to make possible the completion of the great task abroad and the execution of one as great at home.

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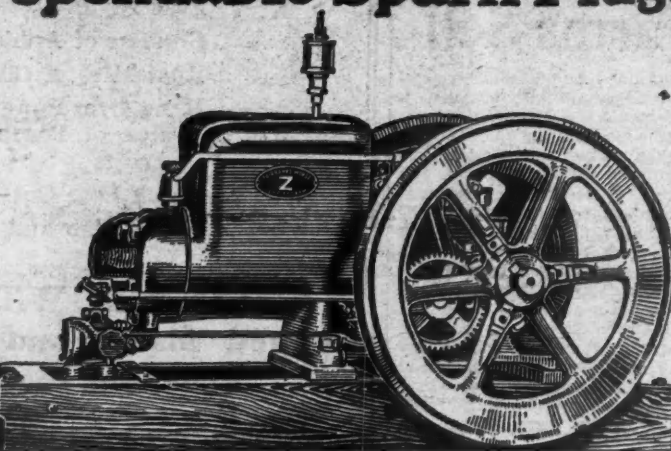
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These sturdy, economical engines are making work easier for more than 250,000 farmers. Ranging in size from 1 1/4 horsepower to 15 horsepower, they are adapted to countless power jobs. They run cream separators, milking machines and washers. They operate electric light plants and water systems. There is hardly a power need that is not met fully and capably by one of the reliable Fairbanks-Morse "Z" kerosene engines.

Fairbanks Morse "Z" engines hold an enviable reputation for performance, economy and quality. The choice of Champion Dependable Spark Plugs as standard equipment for this line of engines, means still another important step in insuring their satisfactory operation under all conditions.

Champion Dependable Spark Plugs have proved their worth in all weather and in all climates on every type of internal combustion engine. Their adoption by Fairbanks-Morse is but one more proof of the high esteem in which they are held.

Champion Spark Plug Company, Toledo, Ohio, U. S. A.
Champion Spark Plug Company, of Canada, Ltd., Windsor, Ontario

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Beyoncé! This wonderful New Model Talking Machine, powered finish, nickel case, and popular record, is yours. A real talking machine with high-grade reproduction. Plays all size records up to 14". Given for selling only 50 large colored pictures or 25 packages beautiful Post Cards at 10c each. Order quick today. Satisfaction guaranteed. **GATES MFG. CO. DEPT. 937 CHICAGO**

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150 Fourth St., Ashland, Ohio

PUMPS
FOR EVERY PURPOSE

Green's Walks and Talks

Continued from page 10

station can say that the Banana apple is not of good quality. No variety of apple or other fruits yields the same grade of fruit in different years. The seasons vary, some favorable and some unfavorable, and the result in fine specimens varies accordingly.

NATIONAL GRAPE GROWERS

The National Grape Growers' Association, on August 26th, was organized at the Hollenden Hotel, Cleveland, O. Delegates from New York, Iowa and Ohio were present and showed great enthusiasm. The first object of the association is to unite all individual grape growers into local organizations and have these locals unite with the national organization.

These representatives, when assembled, shall be called the Congress of Grape Growers. No person interested in the buying of grapes can be a representative to the congress. Any fruit growing association having grape growers enrolled among its membership, is, thereby, eligible to membership in this national organization.

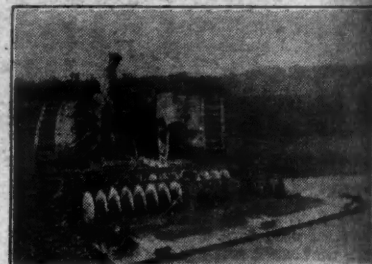
Temporary officers, elected to hold over until the first meeting of the congress is held and the permanent officers elected, are: Chairman, O. W. Johnson, Geneva, O., and secretary, W. H. Asbury, Unionville, O.

Every grape grower and every association of grape growers in the nation, are earnestly invited to communicate with the chairman expressing their opinion of the need of a national association. To those who have no local association, a constitution will be sent and they will be assisted to form an association at the earliest opportunity.

TRACTOR PLOWING IN MUCK

By Alvah H. Pulver, New York

The owner of the tractor here shown desired an arrangement whereby he could work muck soil, which is perhaps the softest farm land in use. The weight of the tractor was too much for the peat land and so he set about to devise means of obtaining extra traction. The result, which was a combination garage and blacksmith job,



is shown in the picture. Each wheel was fitted with a supplementary extension giving practically double contact with the soil. It was first planned to add two wide bands to each wheel but on trial it was found that with but one the machine rode well without cutting in.

With this heavy tractor the operator now finds that he can easily work his sixty acres of muck, doing all the work that the lighter tractors do on such soil and much that is beyond their capacity.

THE CIRCUS OF YESTERDAY

In the days I carried water to the thirsty elephants
Or wormed a surreptitious way beneath the circus tents,
It seems to me the camels were a taller lot than now;
The lions' fretted roaring was more terrible, somehow;
The peanuts were a crisper sort; the lemonade, I think,
Was very much superior to what you get to drink.
At any circuses today—in short, I'm frank to say
The circus of my boyhood was much better than today.

The Yakima Fruit Growers' Association will this year spend \$25,000 in advertising Big Y box apples to consumers. Full page ads will be used in the current magazines. F. P. Clark, sales manager, claims that this will greatly stimulate the apple industry all the way through and will make the fruit per apple much cheaper for the consumer.

Destroy Tent Caterpillars

By Alvah H. Pulver, New York

The tent caterpillar does not offer a difficult problem to the orchardist who adheres to the modern spraying schedule. In fact, in a regularly sprayed orchard there is but little chance for the caterpillar to get a foothold. However, if once allowed to infest a tree, nothing short of entire defoliation will stop their work. The miller lays its eggs during the fall in the tops of the trees, making a small band around the trunk with the appearance of a small honeycomb. With the advent of warm weather the eggs hatch into worms, which crawl down the twigs until a crotch is reached where they commence to spin a tent, their means of sustenance being the foliage of the tree.

When the nests are discovered they should be immediately destroyed, either with a brush or by a torch, the latter being the better way in reaching nests near the tree tops. An asbestos torch will do or one may be made by attaching old rags to a pole, soaking the torch in kerosene. As far as possible all nests should be removed



Heavy Infestation of Tent Caterpillars on Neglected Tree

without aid of torch as fire may work damage to the tree, though in most cases it will be necessary to use it to cover the tree thoroughly.

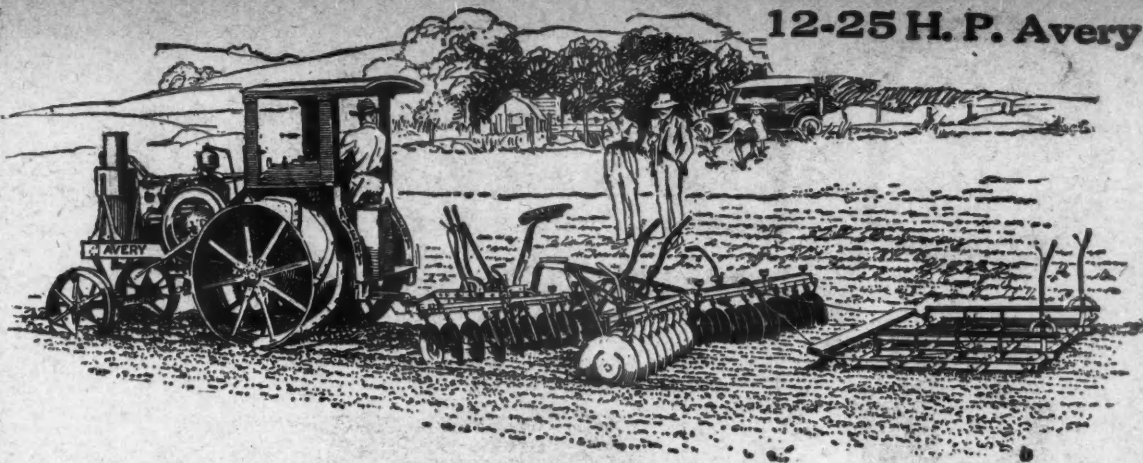
An Early Spray Effective

Next winter it will be well to hunt up the egg masses and thus avoid any extra work later in the year. When it is necessary to give a special spray for the caterpillars, the one recommended consists of two pounds of arsenate of lead in 50 gallons of water added to the spray before the bloom. Generally, orchards sprayed with arsenicals in the spring for the codling moth, cankerworm or similar insects, will be kept practically free of the pest. Perhaps the greatest annoyance from this source will come from isolated trees in the home garden or in small orchards that do not receive the care of commercial orchards.

It will pay well in the small garden orchard of a few trees to adopt militant methods against the caterpillar, as without this he will make annual visitations, each more destructive, until the tree's vitality is lowered to the point of non-production. Every orchardist and small grower should adopt a thorough-going spraying schedule, one which will not only control the caterpillar but such serious pests as the codling moth and various bed and leaf-feeding insects.

For this work any of the arsenical insecticides are recommended, as paris green, Scheele's green, arsenate of lead, etc. The first two are used at the rate of one pound to 150 or 200 gallons of water, and the last at the rate of two pounds to 50 gallons of water. It is well to add the milk of the lime obtained by slaking two or three pounds of stone lime to neutralize any caustic effect of the arsenical on the foliage. Preferably the poisons should be used in dilute lime-sulphur wash or bordeaux, thus effecting a combination treatment for insects and fungous diseases.

A state fruit packing plant and training school will be established shortly at Martinsburg, W. Va., at an expense of \$25,000.



12-25 H. P. Avery

You Can Always Keep an Avery Tractor New

AVERY Tractors really never get old. Even after years of service, you can always make them new again. The Avery is the only tractor with which this can be done.

Avery design is the reason why. You know the cylinder walls of a tractor motor get the hardest wear of any part. In the Avery "Draft-Horse" Tractor Motor the inner cylinder walls are renewable. Think what this means. They are cast separately from the main cylinder. *Result: three big advantages.* They are made of harder material to withstand the wear; they can be turned from time to time to equalize any wear that may take place; and they can be replaced at small expense when worn. No need to buy complete new cylinders; no need to tear the motor down completely, haul it to a repair shop, rebore the cylinders and turn up oversized pistons, etc. All this trouble and expense is eliminated in the Avery by having removable walls which, whenever needed, cost but a few dollars and are easy to renew.

Always Ready for the Job

In Avery Tractors all easily broken parts are eliminated, all main parts last indefinitely and all wearing parts are adjustable or renewable. Every adjustment, repair or replacement can be done on the

farm. It's so simple most Avery owners are their own service men. They save time, money and depreciation on their investment. And what's more, they have a machine that's always on the job.

Other Exclusive Features

Averys are the tractors with the "Draft-Horse" Motor, Direct-Drive Transmission, Kerosene Gasifiers, Valves-in-Head, Two-Bearing Practically Unbreakable Crankshafts, Round Radiators, etc. Sold at popular prices, including complete equipment such as cab, seat, platform, fenders, etc.

Write for Avery Catalog

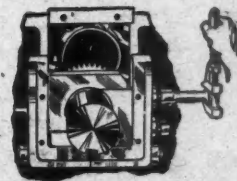
showing a size Avery Tractor for every size farm. Sizes: 8-16 H. P., 12-25 H. P., 14-28 H. P., 18-36 H. P., 25-50 H. P., 40-80 H. P., a special 5-10 H. P. for light work, the Avery Motor Cultivator, and Plows and Separators to fit any size tractor.

Also ask for special interesting Tractor Hitch Book—explains how to motorize your farm work. See sample machines at your nearest Avery dealer.

EVERY COMPANY, 8842 Iowa Street, Peoria, Ill.

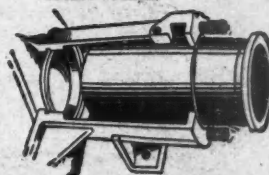
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Motor Farming, Threshing
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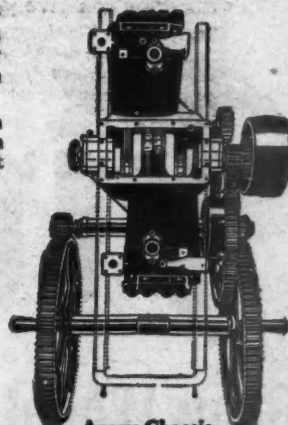
Avery Adjustable Box

One at each end of the two-bearing crankshaft. Quickly adjustable with an ordinary socket wrench.



Avery Renewable Cylinder Wall

Can be turned from time to time to equalize wear and replaced with a new one when necessary. Keeps your motor from "getting old."



Avery Chassis

Showing "Draft-Horse" Perfect Opposed Motor and "Direct-Drive" Sliding Frame Transmission.

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Fruit Trees Grafted from Bearing Orchards. Peaches, apples, pears, plums, cherries, quinces, grape-vines, strawberry plants, raspberries, blackberries, currants and shade trees. Catalog free. Box 52 Berlin, Md.

FREE POWERFUL AIR GUN AND 500 BUCK SHOTS

Big 21-inch lever-action rifle, fine walnut stock. Free for selling 50 large, colored pictures or 50 pigs. Post Cards at 10c. Order your choice. GATES MFG. CO. DEPT. 437 CHICAGO

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When you buy a truck for your farm, have it equipped to handle every hauling job. With this convertible body your truck will meet every hauling condition as perfectly and efficiently as a body specially made for the purpose.

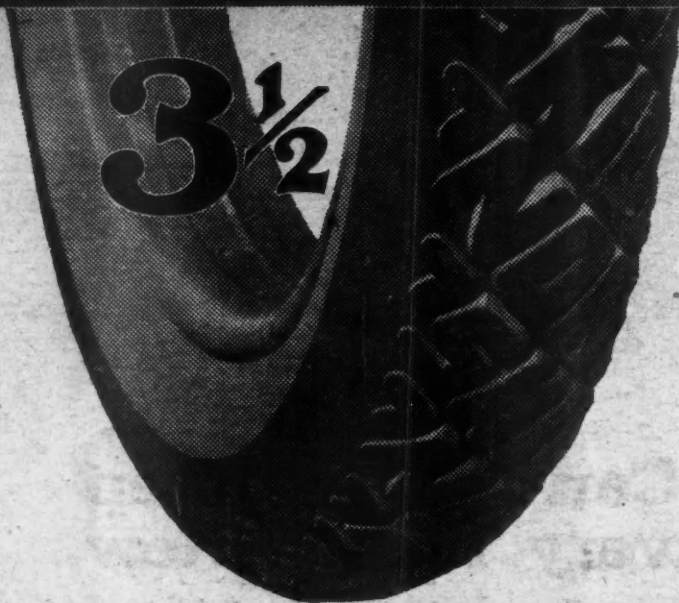
EVERYWAY FARMER'S SPECIAL BODY

"The Body for Everything"

Provides a stock body that will handle four grown cattle, a grain-tight box, a basket or crate body, a rack for sacks, or a wide, roomy hay rack. You can haul one load to town and another kind back, and in every case the body fits.

Write for particulars—Tell us make and size of truck and your dealer's name. No obligation.

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You Buyers of 3 1/2 Inch Tires

You represent over half the tire buyers of the world. You deserve special consideration. Your volume of demand calls for the biggest value.

Recognizing this, Firestone has built a special \$7,000,000 factory for you, designed special machinery for your tire and special looms to weave your fabric.

And this factory is operated by an organization devoted entirely to your requirements. The methods and machinery leave no room for errors or flaws. Result: This special molded tire is the nearest thing to a perfect tire that engineering can give you.

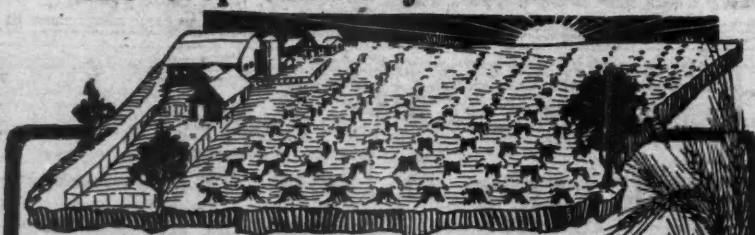
By saving from 10% to 30% on every factory operation, you get this tire at a price that some pay even for the "off brand" kinds. 30x3 1/2, non-skid, \$18; 32x3 1/2, non-skid, \$21.

You get a 6,000 mile adjustment basis, and you get it from Firestone—always in the front in value-giving and now years ahead of the field. Any one of the 42,000 dealers who bank on Firestone quality will put these money-saving tires on your car.

Most Miles per Dollar

Firestone

Grow Wheat in Western Canada One Crop Often Pays for the Land



Western Canada offers the greatest advantages to home seekers. Large profits are assured. You can buy on easy payment terms.

Fertile Land at \$15 to \$30 per Acre—land similar to that which through many years has averaged from 20 to 45 bushels of wheat to the acre. Hundreds of cases are on record where in Western Canada a single crop has paid the cost of land and production. The Governments of the Dominion and Provinces of Manitoba, Saskatchewan and Alberta want the farmer to prosper, and extend every possible encouragement and help to

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Though Western Canada offers land at such low figures, the high prices of grain, cattle, sheep and hogs will remain.

Loans for the purchase of stock may be had at low interest; there are good shipping facilities; best of markets; free schools; churches; splendid climate; low taxation (none on improvements). For particulars as to location of lands for sale, maps, illustrated literature, reduced railway rates, etc., apply to Dept. of Immigration, Ottawa, Can., or

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Frame Film Pack Camera, for selling 20 large colored pictures or 20 pages, post cards at 15c each. Order choice today. Sent prepaid. GATES MFG. CO., DEPT. 237 CHICAGO

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Pay only \$4.50 on arrival

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Black Dress Shoes
Save profits. Pay Direct from Factory Headquarters.
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Brick Roads

By H. J. Kuehling

In placing the brick on the street they should be laid vertical. In other words, so that their face will be parallel with the grade of the street. They should be laid in straight lines across the roadway in close contact with each other, except that in intersections some other method may be used to fit the two lines together. Bricks in adjoining rows should be laid so as to break joints evenly but the break in the joint should never be less than two inches. Pieces of brick should not be used in any place excepting at curb lines or near car rails or other foreign surfaces in the street.

All bricks should be delivered to the setters from the piles along the road by means of clamps and no wheeling of wheelbarrows over the laid brick should be permitted. All sorting and culling, if possible, should be done before the bricks are brought to the bricklayers. Only bricks of uniform width should be laid in any one course and the maximum width of joints should not be greater than one-half inch.

After the bricks are laid the end joints shall be made close by wedging with an iron-band applied at each end of the course near the curbs. At intervals of not less than ten courses the bricks should be closed up and the courses straightened until the maximum variation from the direct line across the road does not exceed two



Grading the Road for a Brick Pavement

inches. All high or low brick, or soft or overburned brick, should be removed and replaced with standard brick whenever they are noticed.

Rolling the Pavement

After the bricks have been laid in place and swept clean of any foreign matter they are ready to be rolled. A self-propelled roller weighing from three to five tons is commonly used for this purpose. The brick near the curb line, if there is a curb, is generally hand-tamped before the rolling commences. The roller then commences near one edge of the road and traveling parallel to the road at a slow speed, gradually works its way across the surface towards the center.

When the center is reached the roller should be taken to the opposite side of the road and worked from there toward the center. After the first rolling the speed of the roller may be increased somewhat to increase the speed of the job. After the road has been rolled longitudinally it should be rolled at an angle of 45 degrees with the center in both diagonal directions. After the rolling the pavement should be thoroughly sprinkled, and this is especially true if a sand-cement filler has been used, as enough moisture must be permitted to reach this cushion to set the cement. No matter what type of cushion has been used enough water should be applied to prevent the brick from absorbing the moisture from the grout filler if such is used.

Fillers for Brick Roads

There are two kinds of filler in use at the present time for brick pavements, and engineers differ very decidedly on which of these is the better.

One consists of a very rich grout composed of one part cement and one part very fine sand, and the other consists of bitumen which may be either a pitch or asphalt.

One writer has very well covered the ground when he says the advantages of using cement grout filler may be summed up as follows:

Advantages of Cement

1. It waterproofs the joints, preventing surface water from reaching the foundation.
2. It adds strength to the pavement, distributing traffic loads over a large area.

of the foundation and bridging slight set-
tlements.
3. It is cheap in first cost and the main-
tenance cost is very low.
4. As long as it fills the joints and re-
mains intact, it protects the edges of the
brick from being broken or chipped, thus
increasing the service and life of the brick.
5. It makes a clean sanitary surface, and
one easily kept clean.

Drawbacks of Cement

The disadvantages of grout as a filler for
brick may be itemized as follows:
1. On busy streets it is difficult and often
impossible to keep traffic off the completed
pavement long enough for the grout to be-
come hard.

2. It is difficult to make openings in the
pavement, and more difficult to repair
them properly and protect them from
traffic for the ten days necessary for the
hardening of the grout.

3. Cement makes a slick pavement and
cannot be used on heavy grades for traffic
except with a grooved or hillside brick.

4. Cement grout brick pavement laid on a
plain sand bed is more noisy than where
bituminous filler is used.

5. The cement grout binds the indi-
vidual bricks into a rigid solid slab, subject
to the strains of expansion and contraction,
which may shatter brick of a weak internal
stretch, or cause unsightly cracks to ap-
pear.

6. The cement grout is very difficult to
properly mix, place and cure, and requires
skillful handling and rigid supervision.

7. Once placed it is difficult to correct or
repair defective grout filler.

Advantages of Bituminous

On the other hand the advantages of a
bituminous filler may be enumerated as
follows:

1. Traffic may be turned on the pave-
ment as soon as the filler is in place, thus
closing the street a minimum length of
time.

2. Plumbing and other openings in the
street can more reasonably be made and
repaired than with a cement grout filler.

3. It is easier on horses' feet and the
soft joint gives a good foothold on all
grades.

4. It can be easily and successfully
manipulated on the street and there is no
expense of protection after it is in place,
with the attendant possibility of damage
by rain, frost or premature traffic.

5. It makes practically a noiseless pave-
ment.

6. All troubles from expansion and con-
traction are done away with.

7. It forms an elastic cushion all around
each of the bricks, protecting them from
shock of blows, and allows slight adjust-
ment in the position of the brick to care for
shrinkage or settlement of the sand bed.

8. It provides a flexible waterproof joint
which is easily maintained.

Drawbacks of Bituminous

The disadvantages of bituminous filler
may be summarized as follows:

1. It is more expensive in first cost and
requires more maintenance than a good
cement grout filler.

2. Under horse and steel tire traffic it
does not wear as well or protect the edges
of the brick from chipping.

3. It does not distribute the loads over
as great an area, and consequently does not
make as strong a pavement as cement
grout filler.

4. It is not as easily cleaned and makes
a more or less dirty surface the first year
after being placed.

5. The bitumen will pack down and
settle into the joints.

The Garfield Farming Corporation re-
cently purchased a bearing vineyard of
171 acres, near Parlier, Cal., for \$1,000
per acre. This corporation is said to be
operated in the interest of Japanese.

Russia has been supplied with agricul-
tural movies by the United States Depart-
ment of Agriculture. These movies depict
the best farm and road building practices
of this country.

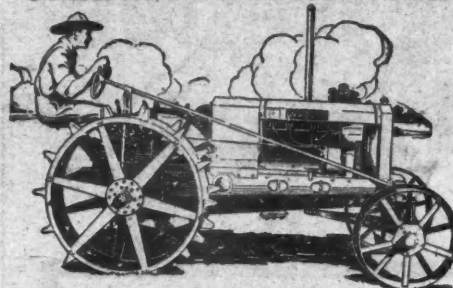
The best rural civilization cannot be
built upon tenant farmers. Every farmer
should desire to own his own farm and
anxious work toward that end.

A car of California cantaloupes was
shipped in June to Havana, Cuba. This is
an innovation in the trade and has occa-
sioned not a little interest.



WALLIS

America's Foremost Tractor



Wallis Value Has Been Proved By Thousands of Experienced Farmers

Abundant Power

The Wallis has, therefore, a big reserve of power to meet difficult
conditions and emergency jobs. Every fruit-grower realizes the
necessity and advantages of a tractor which can furnish plenty of
power for all kinds of field and belt work.

In selecting a Wallis you are thus assured of more than ample
power for plowing, discing, harrowing and reaping, and you also
secure a complete farm power-plant.

Bankers Recommend the Wallis

Your banker will tell you that it is economy to buy the best tractor.
The Wallis, America's Foremost Tractor—judged by durability,
steady work and freedom from repair-cost—is the lowest-priced
tractor on the market today.

Catalog Sent on Request

Write for Wallis catalog and name of nearest dealer. Prove for
yourself that the Wallis, America's Foremost Tractor, is the most
economical tractor you can buy, and the one that will surely solve
your farm problems.

Big Demand for Wallis

If you would enjoy the profits of using a Wallis in your orchard,
you must act quickly. Therefore, do not delay writing us at once—
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Mechanically Supreme

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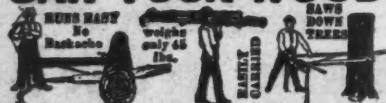
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The classified columns of the American Fruit Grower bring big results

Commercial Value of Nut Growing

By W. C. Deming

Questions about nut growing will be gladly answered in these columns, or by a personal letter if a two-cent stamp is enclosed with the inquiry. Address Dr. W. C. Deming, American Fruit Grower, Chicago.

SOME very important questions have been asked by Mr. Albert E. Day, of Ohio which I should like to answer at this time as clearly and as frankly as I can. Mr. Day says that he believes in the theory of nut culture but has not considered nuts commercially because he thinks that he would not get as much profit from them as he does from the apples that he is now growing and that he would have to wait longer for the profits.

Mr. Day is right. He should stick to his apples. Apples, properly cared for by methods that have been long tried out and can be exactly stated, are a sure profit. But nut growing in the northeastern United States has not been long tried out and exact rules for profitable commercial returns cannot yet be given. This is not true for the walnut and almond industries of California, nor for the pecan growing states in the south, for both of which exact directions as to methods, and pretty close estimates as to profits can be made. But we are not yet ready to advise people in other parts of the union to make extensive ventures in nut growing simply because it has not yet been done successfully, from a commercial standpoint, no certain statements can be made as to profits and we do not wish to mislead people into unprofitable ventures.

What I am trying to do in these articles and what the Northern Nut Growers' Association is trying to do in its propaganda is to demonstrate the great economic importance of nuts as food, to show what has been done elsewhere in nut growing and its possibilities nearly everywhere in the United States. We believe in the certain, future, commercially profitable growing of nuts over this whole country. We are asking people to send us nuts that they believe may be valuable for propagation by grafting and we are urging people to plant grafted nut trees, of the improved varieties that are already being propagated, for the purpose of demonstrating to themselves and to others that nuts may be grown profitably. We are not urging anyone to drop lines of agriculture or horticulture that they are already following with profit, nor to make extensive ventures in nut growing until they have satisfied themselves that they know just what they are about. It is for that end that we ask them to plant nut trees and to make themselves familiar with what others are doing in the same line.

I may have given the impression that nut growing is to be considered an established industry in the east. If so it is a mistake. But I want to help make it an established industry and that is the object of these articles. The way to do it is to plant nut trees according to our present light and to expand as we get more light.

The High Cost of Nut Trees

Mr. Day says that the price of nut trees is so high as to discourage planting. It is true that they are expensive at present because they are difficult to produce and in limited demand. If one wished to set a large orchard of grafted nut trees the expense would be a serious consideration, but almost anyone can afford a few good trees with which to make a beginning and the future will take care of itself. When the value of the trees is demonstrated they will not seem so expensive; growers can learn to propagate their own trees; and as the demand grows the price of trees will fall, as has been the case in California and the South.

Nut Trees on Rough, Uncultivated Land

Mr. Day asks, as do many others, if it is advisable to set nut trees on land that is too rough for apples and other crops, and where they can not be cultivated. This is not the best way to grow nut trees any more than apple or other fruit trees. It would be a pure waste to set English walnut trees on such land. But our native trees, if weeds and brush are kept down, if they are well mulched, and especially if they are given some nitrogenous fertilizer, like nitrate of soda or stable manure, a

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ample of times early in the growing season, will probably be at least worth while growing. Dr. J. Russell Smith is producing good crops of the finest apples on a rocky mountain side by mulching, feeding with nitrate of soda and spraying. Mr. E. A. Riehl of Illinois, our greatest authority on chestnut growing, says that this nut will do well on waste land but will not make as good growth as if cultivated. Col. Sober of Pennsylvania got good crops of the Paragon chestnut by grafting on native chestnut sprouts, until the chestnut bark disease overtook them. I have some good pecans and many vigorous shagbark and other hickories grafted on native shagbark trees. None of these are yet bearing but other growers have them already beginning to bear.

Nut Growing in Southern Ohio

If I lived where Mr. Day lives, with the knowledge that I now have, I would invest my spare money that I had in planting nut trees in the following manner, with the greatest confidence that I should begin to get profits from them nearly as soon as I would if I set apple trees, that the trees would eventually bring me greater profits with less work than would apple trees, and that the nut trees would continue to be a source of revenue to my heirs many years longer than would the apple trees. But I certainly should not abandon my apple trees, at any rate until I had proved that I could do better with the nut trees.

Now as to my proposed planting in southern Ohio. This is within the native range of the northern pecan. Therefore I should set out in my cultivated fields as many of the fine grafted varieties of that nut as I could afford, put them about 100 feet apart so that they might have all the room they would ever need, protect each tree against injury with several heavy stakes, and then go on growing my crops between the trees.

The black walnut is native in southern Ohio. Mr. Riehl has demonstrated in Illinois that on his grafted Thomas black walnut trees he can grow good crops of nuts that yield ten pounds of shelled kernel to the bushel which he can sell readily at 80 cents a pound. I should set the improved varieties of the black walnut as confidently as I would the pecan and in the same way.

I might set a limited number of the Japanese heart nut trees. This tree seems to have a remarkable vigor in holding its own against unfavorable circumstances, grows rapidly, bears young and makes a handsome tree. It is, therefore, an encouraging tree to grow. The nut, however, is unknown in our markets and the public has yet to be educated to buy it.

My reason leads me to believe that Mr. Riehl's statement is true that chestnut growing outside the native range of the chestnut tree, and therefore of the natural spread of the chestnut blight, is one of the best horticultural propositions of the day. Unfortunately southern Ohio is within the native range of the chestnut. If it were not I should certainly want to plant some of the new Riehl chestnuts, bought from nurseries outside the blight area and free from that disease. These and the Japanese nuts may be set from 50 to 60 feet apart.

English walnuts, filberts, shagbarks and hybrids, almonds and other nuts I should plant only in a purely experimental way.

If I could not plant my trees under favorable conditions of cultivation I should plant a much smaller number under the mulch-nitrogenous fertilizing methods and be guided by results.

Summary

The black walnut may be considered to be fairly well demonstrated as a safe commercial venture within the native range of that tree.

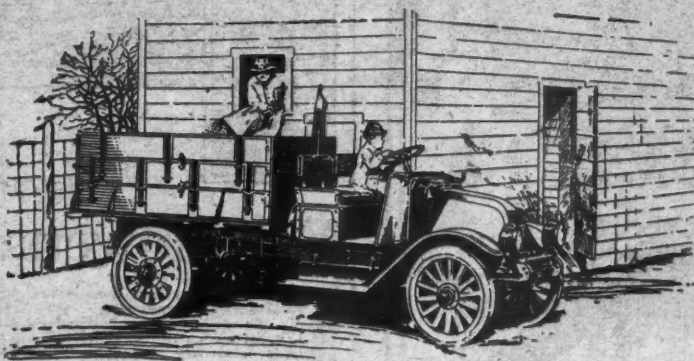
The northern pecan may be fairly considered a safe commercial proposition within its native range, but this has not yet been demonstrated.

Chestnut growing outside the native range of that nut, and where the tree will thrive, is believed to be, from a somewhat limited experience, one of the most promising opportunities in nut growing.

In other parts of the country, not already the seat of established nut growing industries, the outlook for commercial nut culture is good and demonstration plantings should be encouraged.

I think that is fairly conservatively stated.

Near Lake Canandaigua, N. Y., still stands the original Spy apple tree.



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Mr. Weaver states further that he has covered between 90,000 and 100,000 miles with his truck during the three years he has had it and has hauled approximately 28,000,000 pounds. How many years would it take you to haul 14,000 tons of farm produce and travel 100,000 miles—almost four times around the globe—with your team and wagon?

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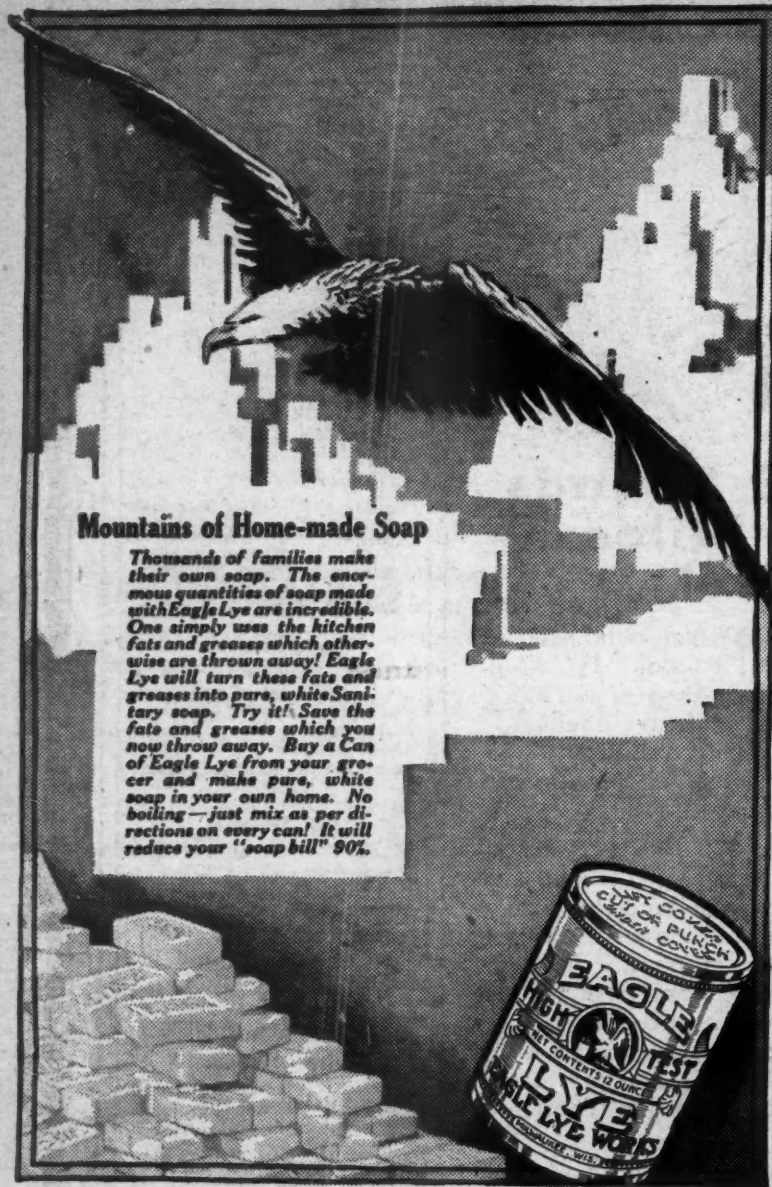
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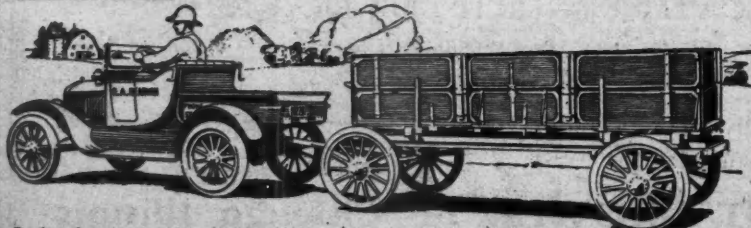
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BEAUTIFYING THE HOME & GROUNDS

By Mary Lee C. Adams

Fall Flowers and Garden Walks

To our subscribers we will send a useful book on "Landscape Gardening," free upon request. To secure a free, individual planting plan, send us a rough sketch of your home grounds showing location of buildings. State size of area to be planted and what amount you contemplate spending on shrubs, etc. Address Mary Lee C. Adams, American Fruit Grower, Chicago.

WHEN the flowers first waken after the long winter, we are certain that spring is our favorite season. There's an emotional quality in our feeling for May. Like a boy's first love, she awakens poetic moods that too often overflow in unpoetic verse. She thrills and bewitches us. By turns she is warm, she is cold, but through all her moods we helplessly worship the sheer beauty of our charmer.

First love is lovely even in memory, but when October flushes the cheek with air so like champagne that the mournful anti-prohibitionist forgets to regret the legal drought, when our pulses bound and we

the flaming spires. October, in moderate climates such as would favor the flowers mentioned, also brings flocks of bright blue birds with red breasts, than which nothing is prettier. It is said that they are disappearing, yet my bird bath throughout September and October and even into November, is constantly fringed with these beautiful little birds which are so lovely in color that they deserve mention along with the gay fall flowers.

Do Your Grounds Need Walks?

What shall we do about our grounds in October besides caring for such plants as must be prepared for the approach of winter? We cannot better occupy our spare time out of doors than by laying needed paths. In winter it is too cold for such work except on rare mild days, and most of the time the ground is frozen or snow-covered. In summer we are too busy among our flowers to give much time to the making of mere walks. In spring the



Vines and Flowering Plants Add Greatly to the Appearance of the Home

feel the energy that could remove mountains, then we know for sure that this month of months is our best-beloved, the one we would gladly have with us always.

The Garden Still Gay

One note of pathos penetrates, it is the passing of the leaves and flowers which are flaunting their last brave banners. The thoughtful gardener has anticipated the lean days and has assured the prolonging of summer with an abundance of blooms until frost. We are rewarded through September and early October by a joyous array of late dahlias, scarlet sage and chrysanthemums, with other hardy and brilliant blossoms. Soon we shall be lifting the dahlias with a garden fork and placing them in a box of sand to be stored in a frost proof cellar, there they may be kept slightly moist to prevent shriveling of the tubers.

Chrysanthemums are of two distinct sorts. The large, show chrysanthemum with a single heavy-headed stem, is not so well adapted to outdoor planting and, indeed, is not so effective in the flower garden as the annual variety which has a long season of bushy bloom. Does a chrysanthemum smell sweet? Hardly that, yet there is something in its tang that causes a sensation of hunger and a hearty anticipation of good winter breakfasts with spicy sausage and fragrant coffee.

Scarlet sage is of such a flaring color that it needs must stand alone or in company with white flowers, but its vivid gleam is most enlivening. A further charm of the scarlet sage is its permanent lure for humming birds, which dart unceasingly about it and add their own brilliance to that of

earth is too wet, so it seems that autumn is the very best season for laying out our walks and paths.

This, if attended to now, will save many muddy steps before spring. It is not agreeable to walk in mud at any time, whether we are going to the barn or simply strolling among the flowers. Some sort of cleanly and dry footing should be provided wherever we must walk or wish to do so. The housewife will agree enthusiastically to this for she, more than any other member of the family, suffers from the tracking of her floors and rugs. It is desirable that all walks be made as attractive as is consistent with usefulness but the garden walks, especially, should be good to look upon.

Even here, where the first consideration is esthetic, a certain directness is best, and in all utilitarian walks about the dwelling and farm it is useless to expect people to make use of paths that do not go straight to the point. The result of an unnecessarily winding walk is that it is regarded and a straight bare line is worn across the grass. Better accept the inevitable and put the path where it will be used.

What Material to Choose

After planning the location of the walks, the question of material arises. For simple service, granolithic, cement or concrete and macadam are fine, though uninteresting in appearance and expensive. Asphalt is another surface beloved by motorists and cyclists, but we neither cycle nor motor about our gardens, and a rich variety of material is found for making walks which we intend shall serve the double purpose of use and ornament.

Grower

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our garden paths, which we should be planning too narrow, the first may well be turf. This comes near to doing away with any appearance of the architectural garden might be different treatment. Few of our homes have such gardens and they exist the owners have means to employ a professional landscape architect and no suggestions from us. Turf paths are the pleasing color of green, and remember, color is important in selecting material for garden paths.

Flag-stones with strips of green between each are nearly as natural as turf. The stones should be laid as close as it is impossible to find enough stones of equal thickness, and therefore spaces must be dug for every one, deep enough to bring the surface level with the turf. Flag-stones are admirably suited to such paths but the old-field stone is not to be despised. Slate is delightful thus employed as it comes in many pleasing shades and some slates are iridescent as a pigeon's breast. Slates may be laid flat on the turf and will soon sink to the right level. Sometimes, instead of a single row of large stones, flags or slates, the effect is broken and the joints finished with mortar, but this looks less natural than when the stones are allowed to become grass-grown. The advantage of the above walks is that anyone, by exerting a little care and muscle, may lay them successfully.

Red gravel is pretty, and at least two inches of it should be put on top of four inches of crushed rock. The red color is harmonious with the surrounding green and, largely for this reason, brick paths are very pleasing. Brick does not readily adapt itself to curves and is recommended particularly for straight paths. It is very ornamental when laid in the basket pattern or in old-fashioned herring bone with border of bricks laid on edge. Boiled linseed oil brushed over them from time to time improves the texture and gives a rich, dark gloss. The quality of brick savors of colonial days, and on such walks we may picture some dignified dame pacing up and down upon the arm of a courtly cavalier, while a gorgeous peacock spreads his tail upon the terrace and rivals their stately step.

And speaking of terraces, is there one beside your house? If well laid out it may become a most attractive feature of the place. The low planting of shrubs and flowers close about the base of the dwelling should be edged with turf. The walk should be surfaced with some material that harmonizes with the color and general appearance of the building. The space for this walk may be limited, but the best effect is given by generous width, not less than five feet if possible. The strip of grass on the farther side of the walk should be even wider to the edge of the terrace. Steps leading to a lower level will add much to its charm.

Disk Harrowing the Orchard

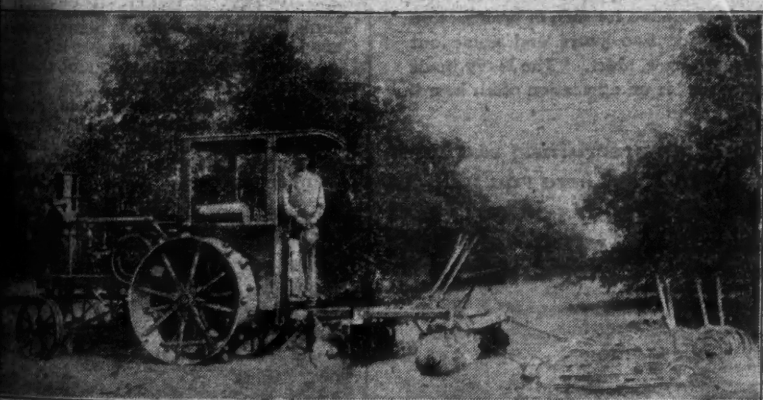
By Earle W. Gage, New York

ONE of the profit-making tools for the modern orchardist is the disk harrow. Thorough tillage accomplishes same results for trees that it does for other crops. There is an added advantage, namely, that orchard tillage may be continued through spring and early summer, the soil being kept in ideal condition and the dust mulch maintained all during the period of development of the fruit when the trees need the greatest amount of food from the soil. Usually a catch crop is seeded later, and disked under for fertilizer in the spring.

The extension head disk harrow is an excellent tool for orchard work. The

brush, etc., to a state where it may be plowed and cultivated. For this purpose a special, heavy disk harrow is made which cuts, chops and breaks the soil, going over obstacles which would stop the ordinary plow. This has the further advantage over the plow of not bringing roots and trash to the surface, but chopping and leaving them in the ground where they will rot and add to the soil's ability to produce.

Thorough disk is the only sure cure for many animal pests as well as for weeds. Particularly is this true of the clover-root curculio, a small pest which attacks clover and alfalfa disastrously and is spreading



Tractor Pulling Cutaway Double Disc and Spray Tooth Harrow, in Kingston Orchard, J. J. Seymour, Ind.

group of disks may be extended from two to nine feet, cutting under the trees, this working nicely with the team or tractor, as the driver will be far enough away from the trees so that there will be no damage to the branches or bark. The California orchard plow is also growing in popularity in sections where disk is followed.

Where legumes are grown for adding humus to the soil, the disk harrow is needed if the crop is to be plowed under, or for cutting the roots and pulverizing the soil after the last crop when a rotation is to be made.

Uses of Disc Harrow

There are certain kinds of plowing for which the disk harrow, in some of its modifications and developments, is peculiarly adapted. For old and fallow land the right disk plow will do more work and perform it better and easier than will the mouldboard plow. With a seeder attachment, the plowing, disk and seeding may all be done in one operation. For after-harvest plowing, the disk plow is in many cases superior to the turning plow. It can readily be seen that the large, revolving disk severs and pulverizes the soil rather than turning it over in lumps and chunks.

A unique use of the disk is in reducing hard and bog land, land overgrown with

into many sections of the country. The Department of Agriculture experimenters advise, after exhaustive tests, that the only positive method of reducing and eradicating this pest is by thorough disk of the fields. This must be done as soon after the crop has been cut as possible, as this will destroy the pupae of the insect.

To kill weeds there is nothing which will equal the disk harrow. Where Bermuda grass is spreading, or where it is to be removed, the sod should be plowed shallow, and then disked several times at intervals. This will completely kill out the roots.

The State Department of Agriculture, at Jackson, Miss., report that citrus canker, which for many months has threatened the citrus groves of the Mississippi coast, has been eliminated both from groves and nursery stock. Thousands of infected trees have been destroyed, and a careful watch has been kept over the infected area for any imported trees that might be diseased.

About 50 Arkansas growers have organized the Springdale Early Apple Growers' Association. They will use a community packing shed and will keep up the standard of grade and pack.



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Cropping Small Fruit Plantations

By S. J. Bole

Once upon a time I believed in interplanting, growing two kinds of fruit together. My first experience was in planting a cherry orchard and interplanting with bush fruits most of which were blackberries and raspberries. The cherry trees were planted twenty by twenty-four feet and the blackberries eight by four feet. This permitted the ground to be marked out in both directions by using a corn marker. This still seems all right in theory and looks well on paper. It did permit of cultivation in both directions during the first summer, but it never worked out in practice. The bush fruits grew well from the first and when it came time to remove the fillers, they were seen to be more handy and profitable than the trees and so the permanent trees were removed instead of the "fillers." While I now realize that the cherry trees contracted most of their many diseases and insects from the adjoining woods, I should now under no circumstances repeat this or a similar experiment. About the only crop I could recommend as a filler is that of the strawberry in a cultivated orchard and I feel that even this combination is seldom best in the long run.

Importance and Choice of Cover Crops

Cropping the orchard or small fruit plantation, however, is a very important question and one that comes home to the grower in his efforts to successfully bring a large or small fruit plantation into bearing. We have advised as forcibly as possible against the use of fillers. The next question naturally turns to that of growing some annual crop, especially a cultivated crop. Of course, the idea here is to grow a partial crop between the trees or bushes in order to pay a portion or all of the expense of caring for the fruit until it comes into bearing. We greatly favor the growing of such companion crops. As to what particular crop to choose will depend on the part of the country, the nature and fertility of the soil and a few other factors. On rather light soil that is lacking in nitrogen, a legume like navy beans, soybeans, peanuts, Canada field peas and cow peas is best. If the soil is high in nitrogen and the fruit trees or bushes grow too much wood, a non-legume like potatoes, beets, carrots, onions, cabbage or corn is best. In case of a legume, the grower should plant the particular crop that grows best in a certain part of the country. As an illustration of



The Interplanting of Bush Fruits in a Young Orchard. This Is a Money-Making Proposition and Yet We Would Not Recommend the Practice

this, the southern grower would choose cow peas; the northern grower, Canada field peas; and the grower in the corn belt, soybeans. If the soil is rich enough, both seed and plants could be removed. In general, the threshed straw should be spread back on the land to be plowed under for humus. The kind of vegetable to grow will depend also on the latitude and kind of soil.

Like growing some farm crop, the crop to select for the fruit plantation should be a profitable one. It must be a crop that can be sold for cash like cucumbers in the north, or like cow pea or soybean hay to be fed to stock in regions farther south. While one is thus limited as to the number of companion crops to grow in any single region,

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the grower should in most cases try to al-
ternate these crops in successive years.
The important consideration is that the
crop should require cultivation. A crop
that requires frequent cultivation is ideal
for then the growing fruit plants will do
best. The crop should not require late
cultivation for this would tend to produce
late growth in the trees or bushes which in
turn would result in too much wood and
often time winter injury.

Some growers overlook this point. Not
only are the growing ends soft and tender
and are easily injured by freezing but
many of the buds develop into branches,
which should have remained dormant until
the following spring and then developed
into fruiting wood. This is especially true
in case of blackberries and grapes.

The Portion to Plant to the Crop

In planting an annual crop in a fruit
plantation, a certain portion of the land is
devoted wholly to the growing crop. In
case of small fruits that are planted in rows
eight feet apart, one row of the cultivated
crop like squash or beets should be planted
between each two rows of fruits. In case
of drilling such a crop as buckwheat, crim-
son clover or millet, a narrow strip should
be left on each side of the row of fruit.
These are not cultivated crops and are not
satisfactory companion crops.

Corn As a Companion Crop

Some growers object to corn as a com-
panion crop. It does pull heavily on the
moisture and plant food in the soil. It also
shades the growing bushes or vines some-
what. However, in case of fertile soil like
that in the corn belt, corn may be success-
fully grown especially if the rows are run
north and south to permit the entrance of
sunlight.

Good and Poor Companion Crops

From what has been stated, the reader
will conclude that such crops as beans,
peas, squash, cucumbers, cabbage, pota-
toes, beets, carrots and corn are the most
successful companion crops to grow. On
the other hand, strawberries, asparagus,
rue, stock, hay and small grains are
poor companions crops but are sometimes
grown. About two such crops can be
grown before berries or grapes begin to
bear fairly good crops of fruit. The land is
then entirely given over to the fruit. The
rows of fruit should be hoed at least two or
three times each season to keep down grass
and prevent the soil from getting crusted
over and dry.

DUSTING OFF THE BERRIES

By Earle W. Gage, New York

A western New York fruit grower em-
ploys a labor-saving method in harvesting
his berries for the canning market. Using
this method, one man, equipped with the
catcher and swatter shown in the illustra-



Harvesting Berries with Catcher

tion, can harvest as many berries in a day
as a score of pickers, and the fruit is equally
good for canning.

The catcher consists of a wooden frame
three feet square, with a foot-piece two
feet wide, covered with canvas. A slightly
upturned front keeps the berries in the
catcher. The swatter is a wide flat piece
of wood, used to strike the bushes—not the
fruit. As the berries are not struck by the
swatter and, when they strike the cloth,
are not bruised, they are equal to hand-
picked for canning purposes.

The fruit is taken to a sorting table,
where the stems, leaves and decayed fruit
are removed, and the good fruit placed in
crates ready for delivery to the cannery.



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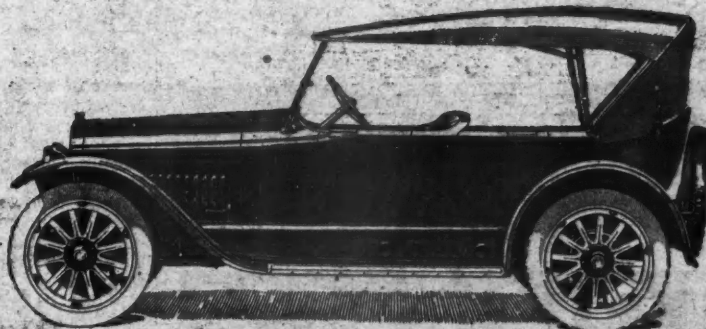
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3. Silage is succulent, providing conditions similar to summer pasture, in winter.
4. The silo insures a saving of time and labor in winter feeding. The farmer does not have to wade through snow or mud to haul feed from the fields in stormy weather.
5. Silage furnishes a uniform quality of feed and puts bloom and good coats on live stock in winter.
6. More feed can be stored in the form of silage than in the form of fodder or hay.
7. The silo insures a smaller loss in nutrients than is possible when crop is made into fodder.
8. Acre for acre, silage is more efficient as a feed than fodder.
9. There is less waste in feeding silage than in feeding fodder.
10. Silage can be used profitably as a supplement to pastures in summer.
11. The silo will make feed of corn stalk blades and husks, which are frequently a total loss if left in the fields.
12. Silage properly made is a good feed for horses, cattle, and sheep. It increases the flow of milk in winter when prices are highest, thus lowering the cost of production, and increasing the profits.
13. The silo will increase the live stock capacity of the farm.
14. Silage reduces the cost of beef production; is economical in the maintenance of breeding animals and keeps young stock thrifty and growing all winter.

Feeding Skimmilk

Many times, a farmer selling milk has a surplus which he runs through the separator. This provides a limited amount of skimmilk which can be fed to calves to good advantage. In such case the milk in the ration can be gradually changed from whole milk to skimmilk at the end of two or three weeks by substituting an equal amount of skimmilk for each portion of whole milk removed, according to W. W. Swett of the University of Missouri College of Agriculture. A complete substitution can be effected in a week or ten days, at which time a good healthy calf should be receiving about six quarts a day. In case the supply of milk is irregular it is well to have on hand a supply of skimmilk powder, which can be mixed with water at the rate of one pound to every nine pounds of water. This can be fed the same as the whole or skimmilk.

When the calf is started on calf meal the amount to be added varies with the size of the calf and the brand of meal. Directions included with the meal should be followed very carefully. In almost every case, the recommendations are to mix the meal with either hot or cold water in sufficient amounts to make a thick, pasty gruel. This is stirred carefully to remove all lumps and then diluted with boiling water. The gruel is usually added to the skimmilk and fed at approximately blood temperature. It should never be fed cooler than 95 degrees Fahrenheit and should be given at the same temperature every day. A thermometer is necessary; "guess-work" has no place in calf feeding.

The amount of skimmilk should be gradually decreased and the amount of calf-meal gruel increased. At the end of six weeks the milk can be discontinued. At this time the calf may be taught to eat dry meal from a feed box if small quantities are rubbed on its nose after it has finished drinking. Feed the dry meal regularly and in small quantities so that none will be left in the feed box to spoil. Give just what the calf will readily eat, and develop the appetite slowly. The gruel can be continued until the calf is four months old and perhaps somewhat longer if desired.

It is always advisable to get the calves to take hay and grain at as early an age as possible. They will usually begin when three or four weeks old if given the opportunity. The early development of this habit helps greatly when calves are taken off the calf-meal rations, for they are already taking liberal quantities of hay and grain and the change to this ration should be gradual. The calves will not suffer such a serious "set-back" as they might otherwise experience. For the first six to eight weeks, the hay fed should be a fine grade of timothy or a coarse alfalfa or mixed hay. Fine alfalfa hay is so palatable that the young calf will eat too much. Either feed a coarse hay or limit the amount of hay which the calf can get. After this time, alfalfa may be fed liberally in safety.

ROME BEAUTY MEMORIAL

By R. R. Cruickshank, Ohio

At its summer meeting held in Lawrence County, the most important section of the state, the Ohio State Horticultural Society took occasion to dedicate a memorial to the Rome Beauty apple. The accompanying cut shows a large granite boulder



Rome Beauty Memorial

which has been attached a bronze tablet. The Rome Beauty has been of so much importance and has had such a large effect upon the fruit growing industry of Ohio that the society deemed it worth while to erect this monument within a short distance of the site of the original tree. The original tree was planted in 1817 by Alanson Gillette. It lead a rather feeble and precarious existence for a few years but lived long enough to demonstrate the value of the fruit. It is now the most widely grown and planted variety in Ohio. It has been also in nearly all the states of the Ohio Valley and in the northwest.

Canned Pineapple Popular

No fruit retains its flavor so well as the pineapple. It is so delicious and wholesome that it is extremely popular. Some prefer it in its cooked state. That Great Britain approves of it is shown by the fact that they annually purchase about \$2,500,000 worth of it. Now there will be the large European markets of Belgium, France, Germany and Austria, all eager to buy.

Local dealers place this season's peach crop of Texas at about 150 per cent above normal. Texas and Oklahoma are expected to total 1,000 car loads of peaches this year.

Why Oregonians Organized

Continued from page 20

date, see no reason why they should receive a standard price for their pears; they see no reason why one grower should receive \$40 a ton more than his neighbor, and quality being equal; and in the mind of the Oregon pear grower he could see no reason why he could not emulate his highly organized California brother and receive a uniform price for his pear—no matter in what particular district in Oregon it might be grown. Therefore the Oregon pear growers have become part of the organization.

Apple Growers Join

The apple growers have joined the association because they too see very heavy increased production. They also see the benefits of a standard pack and grade, uniform prices and a nationally advertised label. The association expects to handle 1,000 carloads of western Oregon apples in 1921 (excluding the Hood River district which does not form part of the organization).

In short, every fruit growers' association in western Oregon, excepting only Hood River, has decided to amalgamate its interests for one common organization through which all their products will be marketed.

During the period of organization July 12 to August 1, upwards of 10,000 acres of all bearing orchards, representing hundreds of growers who were not affiliated with any of the local Oregon associations and joined the association and with the absorption of the Umpqua Fruit Union, the Salem Fruit Union, the Eugene Fruit Growers' Association and other organizations which have held meetings and passed resolutions to join the new association, there are upwards of 20,000 acres of bearing fruit lands in Oregon the products of which will be marketed through the new organization.

The total fruit crop of Oregon will approach \$40,000,000 next year under normal conditions of production. The association anticipates handling about \$10,000,000 of this crop next year, \$20,000,000 by 1921 and thereafter increasing annually. It is apparently but one further step in the economic league of farmers which is sweeping the country for more efficient marketing of all food products; ultimately it is to be hoped to the benefit of the consumer; to the benefit of the producer, and for the everlasting good of the commonwealth and the nation.

THE VALUE OF BEES

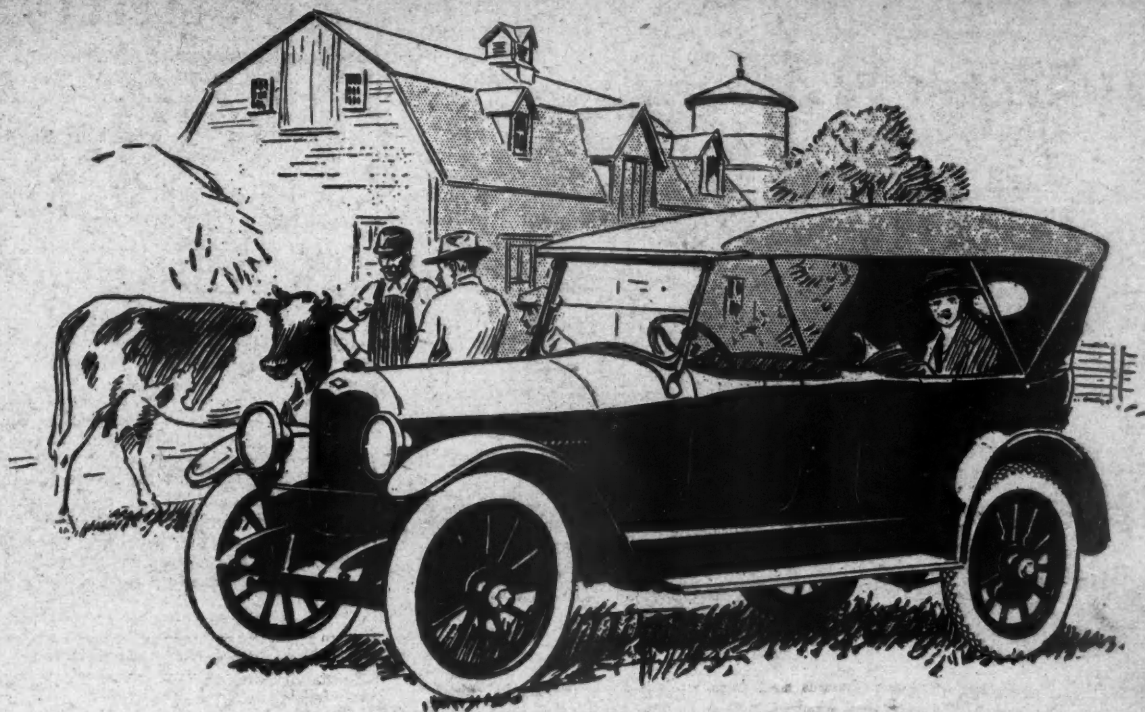
By J. S. Underwood, Illinois

In some localities, and especially in the fruit and vegetable growing sections, there are not enough bees to perform the natural, simple duty of carrying pollen or fertilizing the fruit blossoms. This is a matter on which a great many men are uninformed and it will pay well to give it the most careful study and consideration.

There exists in plants or flowers what corresponds to sexes in animals. In some kinds of plants both sexes are found in the same flower; in some they are in different blossoms on the same plant, while in others they are on separate plants. In any case fruitfulness depends upon the fertilization of the blossoms by pollen from the stamen being transferred to the pistil of the fruit or seed bearing bloom, which is usually termed the female bloom.

This may occur in different ways, such as the ripened pollen being carried by the wind like dust and falling upon the necessary place, or by being carried by insects crawling over the plants, but bees are absolutely necessary to the production of some crops. In fact, practically all of the fruits and vegetables are dependent upon bees for the fertilization of the blossoms. No matter how fine the plants or how abundant the blossoms or how rich the soil may be, the crop depends upon the thoroughness with which the blossoms are fertilized. This is a fact that every grower of fruits and vegetables should keep well in mind.

Demand for raspberries in New York state, forced prices up beyond any previously known. The berries are used not only for jams and jellies but for fruit juices, and, when we were deprived of German dyes, certain fast color dyes were produced from the juice of the raspberry.



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All you want the year round wherever you want—for house, barn, field, any place. Bore your own well, as thousands have done, with our time-tested **Standard Well-Boring Outfit**.
Rapidly operated by hand. Bore wells 8 to 16 in. dia., up to 100 ft. deep. One man bored outfit 5 years ago and has bored over 25,000 feet of wells.
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Make \$20 to \$30 per day boring wells for neighbors—easy to get \$5 ea. to \$2 per ft. H. C. Cole, Fortier, Okla., writes—Have just bored 41 foot well for neighbor in one day and made \$41.00.
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We have just completed a count of our June Budded Peach and find we have the following to offer

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Elberta.....	4,000	6,000	10,000	3,000	
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Red Bird.....				1,000	
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Also have 500,000 each of Klondike and Azusa strawberry plants.

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"THE OLD STOVE MASTER"
KALAMAZOO STOVE CO., Mfg., Kalamazoo, Michigan

"A Kalamazoo Direct to You"
Trade Mark Registered

PRINCE ALBERT

the national joy smoke

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Tobacco Co.



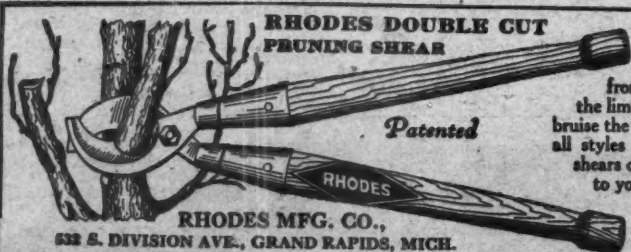
Prince Albert is supplied in tippy red bags, tidy red tins, handsome pound and half pound tin humidors—and in that classy, practical pound crystal glass humidor with sponge moistener top that keeps the tobacco in such perfect condition.

PUT a pipe in your mouth that's filled brimful of Prince Albert, if you're after smoke peace! For, no matter how bad has been your pipe-past or your experience rolling your own, P. A. will hand you such tobacco joy you'll wish your job was to see how much P. A. you could get away with!

You can "carry on" with Prince Albert through thick and thin and no matter how hard you test it out you'll find it true to your taste and tongue. You'll be after laying down a smoke barrage that'll make the boys think of the days in France!

Prince Albert never tires your taste because it has the quality! P. A. is made by our exclusive patented process which cuts out bite and parch—assurance that you can make new smoke records without any comeback but real smoke joy every time you fire up!

R. J. Reynolds Tobacco Company, Winston-Salem, N. C.



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YOU GET MORE MONEY FROM US FOR YOUR Old Rubber, Rags, Metal
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Is located near you. We have many state schools. We teach you how in ten days. If you buy we pay you while learning. If you do not we charge you \$20 for the course. Vulcanize for Customers or yourself. Buy junk tires, repair and sell at a big profit.

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It costs only one cent per dozen eggs to use Egg-o-latium. There is no other expense. Eggs are kept in carton or box in cellar. Eggs may be boiled, poached or used in any other way, just like fresh eggs. Simply rubbed on the eggs—a dozen per minute. A 50c jar is sufficient for 50 dozen eggs. At Drug, Seed and Poultry Supply Stores or postpaid.
GEO. H. LEE CO., Dept. 455, OMAHA, NEB.

The British government has fixed the maximum price for apples for the coming season at a sum equivalent to \$16.25 per barrel, and \$5.00 per box. The fluctuation in the rate of exchange—which last year averaged \$1.80 per barrel—must be taken into account, as well as the ocean freight rate which has been established for the season at 85 cents per box and \$3.00 per barrel.

Pear growers have been somewhat startled by a cable from W. Denis and Sons, London, Eng., stating that the British government has prohibited the importation of American pears, as they are classified as a luxury.

An effort to encourage the growing of raspberries in Michigan, is made in the publication of a bulletin, "Raspberry Culture," by R. E. Loree of the Michigan Agricultural Experiment Station. The bulletin treats exhaustively of the cultivation of the raspberry, and states that many localities in Michigan are ideal for its culture.

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That's what Clarence Carpenter, Canton, Mich., wrote when he got his check from us. Thousands of other trappers say the same thing. Andy Hofer, Ciana Park, Ill., writes: "I did not expect half as much as he received." Wm. White, Danvers, Ill., thanks us for our great grading and liberal prices. Ed. Kidd, Kider, Mo., got fifteen dollars more than expected.

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ORCHARD MANAGER DESIRES CHANGE. Three years' practical manager's experience, besides Horticultural graduate. Box D, AMERICAN FRUIT GROWER, Chicago.

AGENTS WANTED TO SELL "THE MOST mechanically correct and most practical pruning saw on the market." Experience unnecessary. Write today. Wondercut Pruning Saw Company, Box No. 628, Kalamazoo, Michigan.

WANTED—MARRIED MAN TO TAKE charge of forty-acre apple orchard in Washington. Must be experienced and furnish first-class references. Free rent of six-room house on property and good pay to right party. Address A. Z., AMERICAN FRUIT GROWER, Chicago.

U. S. GOVERNMENT WANTS HUNDREDS railway mail clerks. Commence \$90 month. Raise to \$150. Fall examinations likely everywhere. Common education sufficient. Sample questions free. Write immediately, Franklin Institute, Dept. K-141, Rochester, N. Y.

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80 RHUBARB PLANTS POSTPAID \$1.50; 100 asparagus \$1.25. Alva Cathcart, Bristol, Indiana.

GOLDEN GIANT CLING AND FREESTONE, Are grown only by the Sunny Slope Nursery, Hannibal, Mo.

RASPBERRIES, BLACK PEARL AND CUM- berland. \$2.50 per 100, \$7.50 per 500, \$12.00 per 1,000. Wm. Mandel, Nurseryman, Bloomington, Ill.

A POSTAL WILL BRING YOU CIRCULARS OF the Mammoth Grape, largest and finest fruit in the world. Will grow and bear fruit in any climate. Write Poe's Vineyard, Kenton, Ohio.

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MILK GOATS—WRITE GEO. WICKERSHAM, 2916 East Central, Wichita, Kansas.

APPLE CROP FOR SALE ON THE TREES, Ganos. For information address 703 N. 8th, Kansas City, Kans.

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AMATEUR PHOTOGRAPHERS ATTENTION Send your films to the Foster Studio, Elkhart, Ind. First roll and prints free.

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WANTED—TO LEASE, BEARING ORCHARD Give full description. Everett Smith, Nebraska.

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WANTED—FARM WITH LARGE APPLE and pear orchard coming into bearing, in Western New York, Southeastern Pennsylvania or Central States. Possession wanted January or March. Price must be right. Write with description to William Gramans, General Delivery, Syracuse, N. Y.

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Protecting Bearings with Goodyear Belts

Because of their friction surface, Goodyear Klingtite Belts grip the pulley face so firmly that they can be run very loose without slipping. They save time and trouble by protecting bearings against the heating caused by tightened belts.

For instance, the threshing outfit owned by Mr. Askins and working around Winfield, Kansas, reports that before they used Klingtite they had to run with belts so tightly stretched that the cylinder bearings often got hot. And when cylinder bearings heat, the outfit either has to shut down for a little while, or else has to run slowly. If they keep on trying to run fast the bearing is likely to melt out and then there will be a shut-down for repairs.

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Both as a main drive and on separator drives Goodyear Klingtite assures steady running under all conditions, slipless and trouble-free running. Power farmers all over the country are using them as general service belts for all tractor and gas engine work. Because they are not stitched, they are not only exceptionally pliable, but they are free from trouble caused in stitched belts when moisture and drying shrink and stretch them.

You can buy Goodyear Klingtite Belts from the Goodyear Farm Belt Service Station Dealers. They buy direct from the factory, so that they can sell you Goodyear Klingtite for just about the same price as that charged for ordinary belts. Ask for the Goodyear Farm Encyclopedia. Every Goodyear Farm Belt Service Station has it, and you can also get copies direct from Akron. This encyclopedia contains a great deal of information about farm belting problems, about figuring the right size of belt for your needs, and about getting the most out of belts and hose.

THE GOODYEAR TIRE & RUBBER COMPANY, AKRON, OHIO

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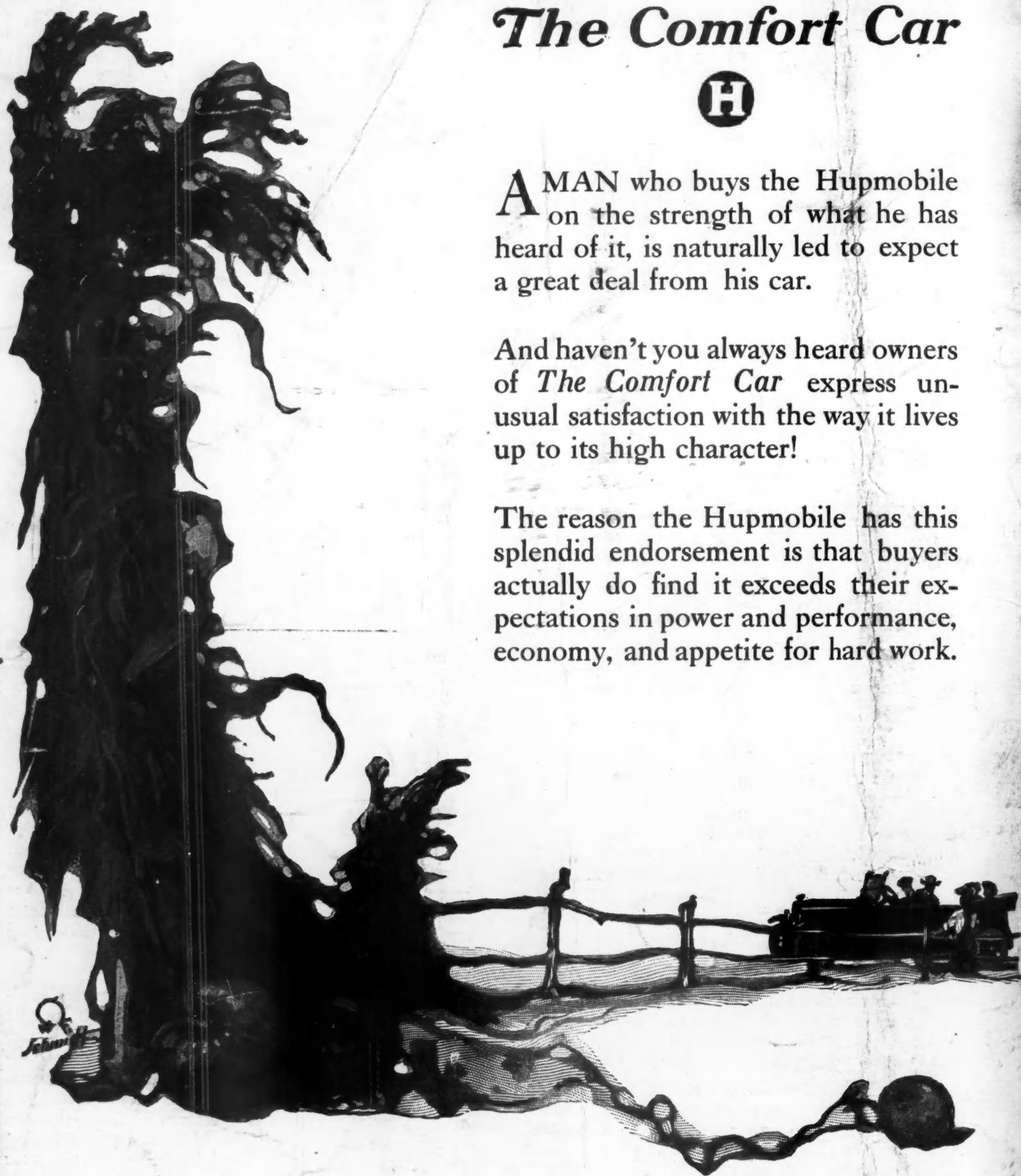
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